Strategic and Defence Studies Centre

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Managing Strategic Risk:

Four Ideal Defence Planning Concepts in Theory and Practice

-PhD Thesis-

by

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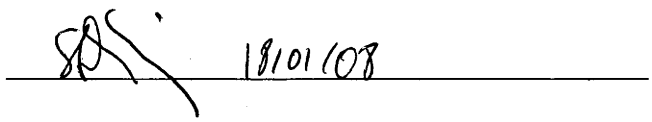
This work is my own except where sources have been acknowledged.



Qui desiderat pacem preparet bellum

Vegetius, Epitoma Rei Militaris (Liber III)

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ABBREVIATIONS

ABP	Assumption-Based Planning
ADF	Australian Defence Force
ALARA	As Low As Reasonably Achievable
ASADPO	Australian Strategic Analysis and Defence Policy Objectives
ASEAN	Association of South-East Asian Nations
ASW	Anti-Submarine Warfare
AWACS	Airborne Warning and Control System
BUR	Bottom-Up Review
CBRNE	Chemical, Biological, Radiological, Nuclear or Enhanced high-explosive munitions
CDFS	Chief of the Defence Force Staff
CIA	Central Intelligence Agency
DoD	Department of Defense
EUCOM	European Command
FPDA	Five Power Defence Arrangements
INTERFET	International Force for East Timor
ISR	Intelligence, Surveillance and Reconnaissance
LRMP	Long Range Maritime Patrol
MDA	Missile Defense Agency
MEF	Marine Expeditionary Force
MPF(F)	Maritime Prepositioning Force (Future)
MRC	Major Regional Conflict
MTW	Major Theater War
NATO	North Atlantic Treaty Organisation
NIE	National Intelligence Estimate

NORCOM	Northern Command
NZDF	New Zealand Defence Force
OODA	Observation, Orientation, Decision, Action
OTHR	Over The Horizon Radar
PPBS	Planning, Programming and Budgeting System
P^3I	Pre-planned Product Improvement
QDR	Quadrennial Defense Review
RAAF	Royal Australian Air Force
RAN	Royal Australian Navy
RDJTF	Rapid Deployable Joint Task Force
RMA	Revolution in Military Affairs
R&D	Research and Development
SLOC	Sea Lines Of Communication
START	Strategic Arms Reduction Treaty
UAV	Unmanned Aerial Vehicle
UN	United Nations
US	United States
USSR	Union of Soviet Socialist Republics
WMD	Weapons of Mass Destruction
WWI	First World War
WWII	Second World War

INTRODUCTION

CHAPTER 1:

TOWARDS A THEORY OF DEFENCE PLANNING

The aim of this thesis is to develop a theory of defence planning—the making of decisions regarding the procurement of military capabilities[1] over time.[2] There is a vast literature on defence planning, but little has been written on the subject in the form of a general theoretical framework that does not relate to specific countries and times. This thesis will, therefore, provide such a 'meta-concept' of defence planning that can highlight the differences and similarities between concepts applied at specific times, and provide criteria to evaluate the appropriateness of such concepts for a situation at hand. Although historical treatises as well as theoretical writings on *strategy*[*3] abound, they do not easily translate into answers on how to define capability requirements or develop force structures, which is the topic of *defence planning*. In the absence of such a meta-framework, defence establishments are therefore often at a loss on how to deal with a new environment when long-established approaches become inadequate as conditions change. Indeed, defence decisionmakers more often than not profess to confront unprecedented uncertainty and complexity when it comes to planning decisions with long-term implications.

There is, however, more to the latter claim than a misguided belief in the exceptionality of the present. Uncertainty is pervasive in the problem of national defence. It affects all aspects of current and future threats, of the effectiveness of forces and concepts in battle, of the goals of the political leadership, and the resources available. But not all uncertainties are of an equal type or consequence. For example, whether and when the Soviets would move into the Fulda Gap was uncertain, and so are the consequences of the rise of new centres of power further into the twenty-first century. Perfect and assured prescience in either case would make the task of the defence planner and strategist incomparably easier. But because these uncertainties are of a very different type, capabilities and force structures suited for one are unlikely to be suitable for the other.

In the following chapters, a general theory of defence planning will thus be developed on the basis of a study of the role of uncertainty. This leads into a risk management perspective on the task, and to the definition of four ideal defence planning concepts.

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[1] Capabilities being the result of the combination of force structure, readiness and sustainability.

[2] Unfortunately, however, there are no commonly accepted definitions of 'defence policy', 'defence management', 'defence planning', or 'defence decisions', nor is there a commonly held view on the literature on how to delineate them from each other. For a short discussion of this point, see John C. Garnett, 'Some Constraints on Defence Policy Makers,' in *The Management of Defence,* ed. Laurence Martin (London: The Macmillan Press, 1976), pp. 29-32. For a similar delineation of defence planning to that developed below, see David S.C. Chu and Nurith Bernstein, 'Decisionmaking for Defense,' in *New Challenges & New Tools for Defense Decisionmaking*, eds. Stuart E. Johnson, Martin C. Libicki and Gregory F. Treverton (Santa Monica: RAND, 2003), pp. 13-32.

[3] Stars mark the first time terms are used that are included in the Glossary. Please note that they will all be introduced in the main part of the thesis.

As there is currently little literature that looks at a general theory of defence planning, the theoretical argument in this thesis will rest on several strands of literature that have not been brought together in this way before: First, literature on uncertainty and risk, as well as risk management—some of which relates to specific applications. Over the last two decades, however, these topics have also become a field of study in their own right, with concepts being developed that are more readily transferable to defence planning. Second, literature on strategic theory is used to elucidate the strategic nature of defence planning. Third, literature on the nature of planning and its relationship with strategy formation will be discussed. Fourth, uncertainty is closely related with surprise, and literature on strategic surprise is thus relevant for the argument here—in particular, works on tactical and strategic warning, as well on the consequences of surprise for defence planning. Fifth, a number of prominent planning methods to come to terms with uncertainty and to control for possibly weak assumptions will be discussed to demonstrate their relationship to the view of defence planning as a risk management process. Sixth, defence planning literature discussing specific concepts for specific countries and times will be drawn upon throughout the thesis—but as the theory herein is developed in an axiomatic rather than empirical fashion, it serves to illustrate rather than make the argument.[4]

1.1 The Scope of the Argument

This thesis will describe how decisions should be taken regarding the procurement of military capabilities to deal with strategic risks.* It is a study of the material preparation for the possibility of war, but not of war itself. Several important implications for the scope of the argument flow from this approach:

First, the approach is normative in nature. The aim is not to discuss how defence planning *is* done in reality, but how it *should* be done. The introduction to Part II will discuss this aspect in further detail, as it has important implications for the methodological function of the case studies in Chapters 6 to 9.

Second, it does not matter whether the war(s) to be prepared for are of the 'traditional' kind, emphasizing decisive battle between regular conventional forces, or fought against more shadowy non-state actors, emphasizing the importance of 'hearts and minds'.[5] The type of war and the strategy being used to achieve victory, however the latter may be defined, is less important for the argument made herein than the question whether such a strategy can be defined in advance or not, and be used as a basis for the defence preparations.[6] Also, operational art as well as foreign policy in the wider sense will not be considered—they fall outside the scope of this thesis, as they do not relate to the material preparation for war.[7]

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[4] Many of the works related to point five and six come from the RAND Corporation.

[5] Rupert Smith, *The Utility of Force: The Art of War in the Modern World* (London: Allen Lane, 2005).

[6] The concept of strategy is thus central to the thesis, and will be discussed in more detail in Chapter 2.

[7] These are what Huntington calls the 'use decisions': Samuel P. Huntington, *The Common Defense: Strategic Programs in National Politics* (New York: Columbia University Press, 1961), p. 3. See also Snow's discussion of the 'development and deployment strategy' in Donald M. Snow, 'Levels of Strategy and American Strategic Nuclear Policy,' *Air University Review,* vol. 35, no. 1 (November-December 1983, pp. 63-73).

Third, when a state[8] is confronted with an existential threat *during (total) war*, the questions relating to the procurement of new capabilities are reduced to a (relatively) straightforward analysis of operational priorities and industrial and financial capabilities. These lie outside the scope of this thesis, as they are not directly affected by uncertainty regarding strategic risk. However, we have to be thankful that the problem of defence planning rarely presents itself as such a clear-cut issue as it does in a fight for national survival. Even when one major threat dominates all others, uncertainty will usually prevail as to the timing of when war might break out, and other circumstances. At a minimum, the procurement of capability for use in the present will thus have to be weighed against that for the future, and decisions have to be taken whether the marginal dollar will be spent on readiness*, increased force structure or the development of new technologies and systems for future use.

Fourth, the thesis will concentrate on discussing those dimensions of strategy that relate to some form of material preparation, such as the provision and training of personnel, the development and production of weapons systems and supplies, or the use geography through the construction of bases. Other dimensions that are not of a material kind will be disregarded unless they directly relate to military capability, as training and doctrine do. Other intangibles, like the strengthening of national identity and will through the education system are excluded from the discussion, although the preparation and nourishment of these dimensions can be equally important to strategic success.

Fifth, the thesis will not be concerned with the complicated relationship between defence planning on the one hand, and domestic policy on the other hand. Since the nature of the argument herein is normative, not positive or descriptive, it is helpful to approach the topic from a single-actor perspective. This thesis is about deciding, under uncertainty, what military capability to develop. How to achieve this in the context of bureaucratic politics is a question of implementation rather than conception, and not further considered.[9]

1.2 Clausewitzian and Jominian Strategic Theory

Two theoretical traditions can be distinguished in the area of strategic studies, which are often referred to as 'Jominian' and 'Clausewitzian'.[10] Each has distinct views on uncertainty and chance in war, as well as the function of strategic theory. While it is helpful for illustrative purposes to distinguish the two approaches, the concepts developed in this thesis straddle both.

The Clausewitzian tradition sees the practice of war from a non-linear perspective. Therefore, similar inputs, or similar strategies, are seen as often not producing similar outputs, or desired end-states. The uncertainty inherent in war makes it impossible to guarantee that what worked yesterday will work tomorrow. This unpredictability

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[8] The theory developed herein is also applicable to non-state actors that conduct planning on military capabilities *over time*—which will probably be states in all but legal status. However, the single-actor paradigm on which it is based does not make it directly applicable to combined force planning in NATO.

[9] Graham T. Allison, *The Essence of Decision* (Boston: Little Brown and Company, 1971), pp. 10-38. A single actor approach is also defended in Colin S. Gray, *Strategic Studies: A Critical Assessment* (Westport, CT: Greenwood Press, 1982), pp. 145-146.

[10] For a good comparison of these two and other strategic theorists, see Michael I. Handel, *Masters of War* (London: Frank Cass, 3rd revised and expanded edition, 2001).

demands that any theory of war be more heuristic than prescriptive.[11] Clausewitz himself wrote that

> Theory cannot equip the mind with formulas for solving problems, nor can it mark the narrow path on which the sole solution is supposed to lie by planting a hedge of principles on either side. But it can give the mind insight into the great mass of phenomena and of their relationships, then leave it free to rise into the higher realms of action.[12]

Clausewitz stresses the importance of uncertainty, friction and the adaptive enemy in strategy, which, in his eyes, make it impossible to formulate timeless recipes for success. His theory therefore centres on the role of intangibles, like morale and will, on the relationship between the use of military force and the political goal, and the importance of (subjective) military 'genius'.

Antoine Henri de Jomini, who like Clausewitz fought in the Napoleonic wars,[13] developed a theory of war that was shaped by his experience in the French general staff. In his view, a commander should and could apply (objective) scientific principles to wage war in a way similar to a game of chess:

> There exists a small number of fundamental principles of war, and if they are found sometimes modified according to circumstances, they can nevertheless serve in general as a compass to the chief of an army.[14]

> It is true that theories cannot teach men with mathematical precision what they should do in every possible case; but it is also certain that they will always point out the errors which should be avoided; and this is a highly-important consideration, for these rules thus become, in the hands of skilful generals commanding brave troops, means of almost certain success.[15]

David S. Fadok writes that

> The Jominian tradition believes that the practice of war (i.e., its strategy) can be reduced to a set of general principles or rules which can be scientifically derived and universally applied. It recognises that the nature of war may change due to political and/or moral variables, but that the conduct of war is constant and governed by

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[11] David S. Fadok, *John Boyd and John Warden: Air Power's Quest for Strategic Paralysis* (Maxwell AFB, AL: Air University, 1994), <http://www.fas.org/man/eprint/fadok.htm> (24 January 2005). See also Barry D. Watts, 'Ignoring Reality: Problems of Theory and Evidence in Security Studies,' *Security Studies*, vol. 7, no. 2 (Winter 1997/98), pp. 115-171, which addresses the difference between both schools in the context of a particular debate, and cites other major articles doing the same.

[12] Carl von Clausewitz, *On War*, edited and translated by Michael Howard and Peter Paret (New York: Alfred A. Knopf, Everyman's Library, 1993), p. 698.

[13] For a short biography of Jomini, see John Shy, 'Jomini,' in *Makers of Modern Strategy*, ed. Peter Paret (Princeton: Princeton University Press, 1986), pp. 146-182.

[14] Antoine Henri de Jomini, *Treatise on Grand Military Operations* (New York, 1865), p. 18, quoted in Azar Gat, *The Origins of Military Thought* (Oxford: Clarendon Press, 1989), p. 112.

[15] Antoine Henri de Jomini, *The Art of War* (London: Reprint of 1862 edition, 1992), p. 323, quoted in Colin S. Gray, *Modern Strategy* (Oxford: Oxford University Press, 1999), p. 95.

> principles. For Jominians, the duty of theory is to uncover these immutable truths and to advocate their adoption and use.[16]

In three important respects, the theory developed in this thesis is distinctly Clausewitzian: First, the ideal nature—discussed in more detail below—of the defence planning methods developed in Chapter 5 means that they provide "insight in the great mass of phenomena", rather than the "narrow path on which the solution is to lie".[17] Second, as this thesis examines the effect of uncertainty on defence planning, its paradigm regarding the nature of strategy is the Clausewitzian one—Chapter 2 discusses sources of uncertainty in strategy, and makes the case that it is in principle impossible to eliminate uncertainty, or to confidently rely on enduring cause-effect relationships which are assumed to exist by Jominian theorists. Third, the theory will repeatedly highlight the importance of professional and value judgement in strategy and defence planning, which cannot be replaced by objective analysis based on Jominian principles. Paul K. Davis, by no means a stranger to the use of analytical methods in the area, writes in this respect that

> Bluntness is appropriate ... about a controversial matter: Those who reject subjectivity in methodology have no place in higher-level planning, since the most important decisions are inherently subjective. ... The challenge is not to make things "objective", but to structure subjective judgments so that they are well defined and meaningful as part of an analysis.[18]

Yet, the arguement also takes a more Jominian approach in many respects, as defence planning necessarily involves many, usually very expensive decisions on force sizes and capabilities. Those who draft and take these decisions not only have to make judgments between numerous competing demands, but also consider a multitude of technical and financial repercussions and justify their actions to those who ultimately pay for them. Reference to strategic genius alone, however justified in theory, will not invite much understanding in this context, and is unlikely to save any weapons program from a treasurer's wrath. The inevitability of the influence of subjectivity and professional judgement does not mean that rigorous and, if possible and where appropriate, even quantitative analysis can be dispensed with. Throughout the thesis, there will therefore be a tendency to quantify strategic problems and to find 'optimised' solutions, an approach that is much closer in nature to Jomini's application of a "small number of fundamental principles of war" than to the teachings of Clausewitz. The aim is, however, not to replace the latter with the former, but to discuss the proper place of both in the overall effort that is defence planning.

1.3 The Theory of Managing Strategic Risk: An Outline of the Argument

All readers interested in the intricacies of social science methodologies are kindly referred to the two introductory sections at the beginning of Part I and Part II, which place the approach of this thesis in the context of theoretical considerations regarding the building and testing of theory, respectively. Those readers who are not can,

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[16] Fadok, *John Boyd and John Warden: Air Power's Quest for Strategic Paralysis.*

[17] See also Peter Paret, 'Clausewitz,' in *Makers of Modern Strategy*, ed. Paret, pp. 193, 198.

[18] Paul K. Davis, 'Uncertainty-sensitive planning,' in *New Challenges & New Tools for Defense Decisionmaking*, eds. Johnson, Libicki and Treverton, p. 152.

however, safely skip these sections, and it is out of considerations for them that the remainder of this introductory chapter only outlines gist of the main argument.

Chapter 2 will introduce strategy as a system of causal relationships that links the steps and actions of countless individuals to the achievement or otherwise of the political goal of the state. In practice, it has numerous dimensions, and is subject to irreducible sources of uncertainty originating from aleatory uncertainty, complex systems, cognitive, mental and physiological limits, and the enemy, all of which will be discussed below. We can never be certain that our forecasts regarding the international system are correct, that the technological, tactical and operational ways of war do not fundamentally change, that our information about the state of the world is not severely incomplete or wilfully distorted, that friction will not affect an issue that looks deceptively simple 'on paper,' or how the enemy will react to any of our moves. Notwithstanding the ease with which a strategic problem can be analysed in hindsight, doing strategy by creating a workable theory of victory will always remain an art more than a science.[19] And since that theory of victory needs to be translated into rules that can guide a bureaucratic effort, the way in which it is thus 'codified'* must be analysed in context with that uncertainty as well. As far as the day-to-day business of defence is concerned, codification and uncertainty are nowhere more relevant than in the area of force structure planning: Here, the consequences of decisions will often remain assets or constraints for decades to come.

Chapter 3 discusses that the combination of uncertainty and potential harm are integral components of the concept of risk, and that strategic risk is thus intrinsic to the problem of strategy making and execution. Given the uncertainty prevalent in anything that relates to strategy, it is seemingly straightforward to think about defence planning as risk management. But risk and uncertainty are multi-dimensional concepts, and describing them is far from easy. (Political) judgment is inherent in comparing and ordering risk into orders of priority. Different kinds and degrees of uncertainty, both epistemic* and ontological*, have to be compared and weighted. In doing so, it is helpful and necessary to assess whether the available information suffices to define *risks** in the narrow sense, or whether one is faced with *indeterminacy** or even *ignorance**. Failure to do so creates institutional risk*, and is not uncommon in the area of strategy.

If defence planning is analysed as risk management, the concept of strategic risk that is used to do so is pivotal to the whole discussion. Existing concepts of strategic risk largely fail to capture the scope of the problem of dealing with uncertainty—some even imply that risks can be eliminated, and thereby ignore the inherent uncertainty involved in 'doing' strategy. In order to describe and manage strategic risk, it is necessary to distinguish more dimensions than just probability and consequences—the 'risk' side of the problem—and to include other dimensions from the 'strategic' side, such as information regarding the enemy and his theory of victory*. Since strategy is

[19] John Whitman writes: "It is uncanny how the choice of a level of detail will influence ... the seeming wisdom of the proposed policy. A proposal may appear to bloom with fair prospects when viewed in a general way, yet prove to be studded with thorns when examined in detail. Surely everyone can understand this; how many bright ideas have we all had which might survive one or at most two levels of detailed criticism but fell apart at the third? And when that third level is reached, do we not insist that it's a good idea "in principle" and plead for a reconsideration at the higher, more favourable level of generalization?" John Whitman, 'On Estimating Reactions,' *Studies in Intelligence*, vol. 9, no. 3 (Summer 1965), p. 3.

intrinsically linked to politics, strategic risk itself is also inseparable from political judgment.

Chapter 4 shows that risk management is based on the assumption that future cause-effect relationships can be identified today and be used to reduce future risk. This assumption can make it quite demanding to correctly use risk management processes, despite the deceptively simple structure that they often have on paper. This is especially the case if concurrent risks have very different qualities, so that some well-defined risks can be treated with a limited number of well-specified steps, while particularly uncertain risks that are addressed on the basis of the precautionary principle* might only be treatable by measures with a very broad scope.

In the strategic context, the co-existence of such different risks is the norm rather than the exception, since the information available on specific risks varies greatly. Herein lies a first general difficulty of the task of defence planning. It is compounded by the fact that the management of strategic risk involves both the formation of strategy and its execution, which are by their nature very different processes. Codification* of political guidance* into strategic guidance* is thus a pivotal step in the overall defence planning process.

Looking at defence planning as a risk management problem provides a framework that can describe the basic tasks of defence planners independent of the specific problems and challenges that they face at any point in time. Depending on the nature of the risk pattern that a defence organization faces, many parts of this framework will be implemented through different and sometimes idiosyncratic methods. The basic function of each part, however, remains the same. Using such a framework to think about defence planning can help to avoid the need to 'reinvent the wheel' each time that significant geopolitical shifts make adjustments necessary, and to evaluate the relative strengths and weaknesses of different planning and analysis methods. However, it is important that they must be implemented in consistent ways, taking account of the particular patterns of strategic risk.

Chapter 5 will therefore define four ideal defence planning concepts that show an internal configurational fit between the risk pattern to be treated, the way in which political guidance is codified into strategic guidance that determines requirements, and the force structure concepts used to fulfil these requirements. It is important to remember that these frameworks are not strategies, are not meant to replace strategies, and cannot do so. A coherent theory of victory is created in a creative process of strategy formation. There is little that this analysis could recommend on this point, given the paramount importance of specific geographies, political goals, historical path dependence, technology and the like that must be considered, as well as the creative and synthetic nature of that process. *Rearmament Planning*, *Threat-based Planning*, *Multi-Threat Planning*, and *Task-based Planning* as defined here thus cannot be directly applied, without the definition of a theory of victory appropriate and distinct to the situation, but they can describe the way in which political guidance must be codified into strategic guidance, and how uncertain requirements can be met.[20]

[20] Some might argue that a willingness and capability to shed blood can compensate for informational uncertainties about enemies known and unknown—the armies that conquered one new Roman colony after another under the Republic and the Empire certainly performed impressively against known enemies

1.4 The Practice of Managing Strategic Risk: Choice of Case Studies

In the second part of this thesis, eight example case studies will be used to demonstrate the implementation of the four ideal defence planning concepts in practice. Readers interested in the methodological issues involved in using case studies in a normative framework are again referred to the short section at the beginning of Part II. The choice of the case studies itself has been guided by four main considerations:

First, the goal is to highlight the importance of the risk pattern for the way in which defence planning is done. To the extent possible, other influences should thus be held constant, in particular long-term factors such as geography or strategic traditions. Therefore, case studies for each defence planning concept should be drawn from one country that, throughout time, used defence planning frameworks that are similar to all four ideal concepts described in this thesis.

Second, it was desirable to demonstrate the validity of the theory for large powers that need to carry strategic weight* globally, as well as middle- and small powers who only carry strategic weight locally, if at all.

Third, sufficient material had to be available on the defence planning process in the country, as it is not sufficient for the purpose here to merely demonstrate the outcome of the process in terms of capability decisions. In addition, information had to be available in the public domain to outline, at least in general terms, the pattern of strategic risk that the government saw itself faced with, and the way in which requirements had been derived from that risk pattern and the general theory of victory.

Fourth, the case studies should draw on major policy documents, such as White Papers (in the British tradition) or Policy Reviews (in the United States), which give an authoritative statement regarding the questions under consideration here. As they provide a 'snapshot' in time, these documents should, in theory, discuss the risk pattern, the definition of requirements, and capability concepts in the most coherent and internally consistent manner possible, and will thus be taken at face value. Since they reflect policy intent, such documents are also most congruent with the normative approach of the argument. In that context, the focus will be on the configurational fit *within* the document. The question of whether a particular risk pattern was correct (or, rather, appropriate) at the time will *not* be discussed, nor will the extent to which the policy outlined in the document has actually been implemented in later years.[21] Of course, White Papers and Policy Reviews have functions in the domestic policy context that extend beyond the mere objective summary of a government's intentions in the area of defence planning. However, a similar problem of the interference of domestic

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as well as previously unknown ones. It is, however, also true that everything starts to look like nails to those who only have a hammer, and the traditional method of quick conquest, administration and assimilation of new territories ultimately led to the annihilation of three full legions, when it was pushed too far into the seemingly endless European hinterland. For a discussion of that strategic surprise, see Rose Mary Sheldon, 'Slaughter in the Forest: Roman Intelligence Mistakes in Germany,' *Small Wars and Insurgencies,* vol. 12, no. 3 (Autumn 2001), pp. 1-38. Although several punitive expeditions ventured out from Roman-controlled territory into the areas that were lost in 9 AD, the Empire never made another attempt at expanding into the Germanic forests.

[21] This has important consequences for the extent to which secondary literature is relevant for the discussion in this thesis—most discussions of major policy reviews either provide partisan or relatively unconstructive criticism at the time, or critique its main elements with the benefit of hindsight.

politics on the questions under consideration here would pose itself in an even greater way if realized, as opposed to intended, policy was studied.

Not all four conditions could be fulfilled at the same time and to the same extent, so compromises had to be made. Four of the case studies are drawn from major episodes of the defence planning history of the United States between the 1920s and the year 2001. *Rearmament Planning* will be illustrated by a discussion of defence planning in the interwar years, and *Threat-based Planning* by that during the years after the Vietnam War. For these two case studies, no White Paper-type documents are available, and intended policy needs to be partly extrapolated from realized policy. The example of *Multi-Threat Planning* is based on the 1993 *Bottom-Up Review* (*BUR*), the first review of an administration that begun its time in office after the Cold War. Following the *BUR*, Congress introduced a requirement by law for a regular defence review to be submitted to it every four years—the *Quadrennial Defense Review* (*QDR*).[22] The first of these documents, produced by the Clinton administration in 1997, confirmed the broad outlines of the *BUR*'s strategy and force planning framework. The second one, submitted by the Bush Administation in 2001, will be used here to illustrate *Task-based Planning.*

The second set of examples is drawn from Australia and New Zealand between the years 1976 and 2000. Both countries share a common history as far-flung outposts of the British Empire, which has also been reflected in a historically parallel strategic outlook, and joint military deployments from early settlement until the Vietnam War.[23] Both countries' militaries and defence communities are also very similar in sociological terms.[24] All but one of the Australian defence White Papers since Vietnam will be discussed: The 1976 White Paper as an example for *Rearmament Planning*, the 1987 one for *Threat-based Planning,* and the 2000 one to illustrate *Multi-Threat Planning*—the White Paper of 1994 had largely confirmed and updated the main conclusions of its predecessor. As there is thus no suitable Australian Paper for *Task-based Planning*, the antipodean example will be the 1991 New Zealand White Paper.

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[22] See Jeffrey D. Brake, 'Quadrennial Defense Review (*QDR*): Background, Process, and Issues,' *Congressional Research Service Report* RL20771 (Washington D.C.: Congressional Research Service, 2001), p. 2.

[23] For a concise overview of early New Zealand military history, see James Rolfe, *The Armed Forces of New Zealand* (St. Leonards, NSW: Allen & Unwin, 1999), pp. 1-19.

[24] Cathy Downes, 'Australia and New Zealand: Contingent and Concordant Militaries,' in *The Postmodern Military: Armed Forces after the Cold War,* eds. Charles C. Moskos, John Allen Williams and David R. Segal (Oxford: Oxford University Press, 2000), pp. 182-204.

PART I:

THEORY

INTRODUCTION TO THE THEORETICAL APPROACH

From a methodological point of view, the quality of a theory as a logical edifice can be assessed according to a number of ideal criteria: Axioms have to be used economically, and they must to be logically independent. Both axioms and the statements derived from them have to be consistent. Theories should have general validity, i.e. be applicable to the largest possible number of cases, yet be specific in the statements that result—the combination of which gives them informational value. At the same time, statements derived from the theory should also allow the least number of possible logical outcomes, and must be falsifiable. Most theories in reality do not fulfil all of these criteria, which nevertheless set an ideal as a point of reference.[25]

Strategy itself is an art rather than a science, but theories *about* strategy and war must relate to these ideal criteria if they are to claim informative value. In this thesis, Chapter 2 defines basic terms relating to strategy and its implementation, and discusses uncertainty in strategy. The chapter thus introduces axioms relating to the nature of strategy, and constitutes the first conceptual pillar of the theory developed herein. Chapter 3 defines risk and associated notions, which constitute the second axiomatic pillar and are then applied to strategy. Chapter 4 builds on the first two chapters and develops a framework of defence planning as a risk management process that flows from the basic axioms on strategy and risk introduced in the preceding chapters. With regards to the methodology, Chapters 2 to 4 thus form one logical edifice whose quality is related, firstly, to the validity of the axioms used, secondly, to the completeness of the deductive chain of logic that the theory derives from them, and, thirdly, to the absence of contradictions and tautologies among axioms and derived statements.

The most common theoretical method in natural and social science is the contingency approach, which analyses *causal* relationships by determining the influence of independent variables on the dependent ones. However, a *non-causal* relationship, for example whether two colours 'clash' or not, defies such a framework. It must be analysed in a configurational approach, which originally arose out of the study of human perceptions in psychology, and the philosophy of science,[26] and will also be used in Chapter 5. In the social sciences, the configurational approach

> represents a holistic stance, an assertion that the parts of a social entity take their meaning from the whole and cannot be understood in isolation. Rather than trying to

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[25] Joachim Wolf, *Organisation, Management, Unternehmensführung: Theorien und Kritik* (Wiesbaden: Gabler, 2003), pp. 8-13.

[26] Kevin Mulligan and Barry Smith, 'Mach and Ehrenfels: The Foundations of Gestalt Theory,' in *Foundations of Gestalt Theory*, ed. Barry Smith (Munich: Philosophia Verlag GmbH, 1988), pp. 124-157.

> explain how order is designed into the parts of an organization, configurational theorists try to explain how order emerges from the interaction of those parts as a whole.[27]

How to measure performance is thus, for example, seen as part of the configuration itself, and not as external. In the field of defence planning, it is thus not possible to compare, for example, the contribution of intelligence to the success of defence planning across different situations in isolation: When decisionmakers define the goals they try to achieve, they will take into account how much information about threats is available to them, of which intelligence is an important part. Trade-offs between different dimensions of success must thus be seen in context with the configuration itself.[28] The framework developed in Chapter 4 inherently fulfils this demand, since performance is measured in the form of the subjective evaluation of the reduction of strategic risk achieved by the defence effort (see Sections 3.3.3 and 4.2.5).

A central issue developed in Chapter 4 is the need for a conceptual fit between, first, the pattern of strategic risk, second, the methods of defining military requirements from that pattern, and, third, the capability planning tools that can be used to meet these requirements. In other words, the methods that are used to define requirements, and the capabilities developed to fulfil them, must be compatible with, and appropriate for, the nature of the strategic risk that is to be reduced. Different situations of strategic risk will require different ways of going about defence planning. Policy implications directly flow from this analysis, as the conceptual fit must be maintained when circumstances change over time.

In order to describe the varied nature of reality, the configurational approach uses systems of classification.[29] In general, classifications can be theoretically deduced (typologies) or empirically found (taxonomies), but both approaches are mixed in reality since theoretical deductions are usually based on empirical knowledge.[30] In the social sciences, Max Weber's discussion of legal, traditional and charismatic leadership[31] and Mintzberg's definition of different types of organization[32] are two famous examples of classifications. Both describe different versions of organization and leadership that show an internal configurational fit. Such configurations are often referred to as *Gestalten* (after the German word for form or shape).

Chapter 5 thus discusses four ideal defence planning *Gestalten* that are coherent implementations of the process developed in Chapter 4. This typology is based on a special form of *Gestalt,* as they are ideal cases. Such a (platonic) ideal or Weber's *Idealtypus* is:

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[27] Alan D. Meyer, Anne S. Tsui and C.R. Hinings, 'Configurational Approaches to Organizational Management,' *Academy of Management Journal*, vol. 36, no. 6 (December 1993), p. 1178.

[28] Rajaram Veliyath and T.C. Srinivasan, 'Gestalt Approaches to Assessing Strategic Coalignment: A Conceptual Integration,' *British Journal of Management*, vol. 6, no. 3 (September 1995), pp. 205-219.

[29] In contrast, the contingency approach deals with the varied nature of reality by describing the influence of different values of independent variables on the dependent ones.

[30] Wolf, *Organisation, Management, Unternehmensführung: Theorien und Kritik*, pp. 338-359.

[31] Max Weber, *The Theory of Social and Economic Organization* (London: Collier-Macmillan, 1947), pp. 329-366.

[32] Henry Mintzberg, *Mintzberg on Management: Inside Our Strange World of Organizations* (New York: The Free Press, 1989).

> created by a one-sided accentuation of one or more parts and the combination of a multitude of diffuse and discrete, more or less or sometimes not at all present, individual phenomena, which fit with the singularly accentuated parts and form a coherent *thought*.[33]

Care must be taken not to confuse the classification itself, and the ideal cases in particular, with a causal explanation. Whatever the conceptual beauty of an *Idealtypus*, it does not in of itself contain any proof that nature coincides with it, nor any reason or cause why it should.[34] A *Gestalt* in general is merely a means to describe reality, and an *Idealtypus* not even a direct representation of it—it is an ideal benchmark that can be used to measure and compare real cases.[35] Any real country's planning will fall short of the typology's conceptual purity, and usually combine aspects of two or more of them.

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[33] Emphasis in original, translation by author. Max Weber, 'Die 'Objektivität' sozialwissenschaftlicher und sozialpolitischer Erkenntnis,' *Archiv für Sozialwissenschaft und Sozialpolitik*, vol. 19 (1904), pp. 22-87. Reproduced in E. Flitner, ed., *Gesammelte Aufsätze zur Wissenschaftslehre von Max Weber* (Potsdam: Institut für Pädagogik der Universität Potsdam, 1999), p. 191.

[34] Meyer, Tsui and Hinings, 'Configurational Approaches to Organizational Management,' p. 1180.

[35] Weber, 'Die 'Objektivität' sozialwissenschaftlicher und sozialpolitischer Erkenntnis,' pp. 190-194.

CHAPTER 2:

STRATEGY AND UNCERTAINTY[36]

This chapter will discuss the concept of strategy in more detail. It will begin by looking at the Planning, Programming and Budgeting System (PPBS) in the US Department of Defense (DoD). This will serve to illustrate the difference between the formation of strategy on the one hand, and its codification on the other. Finally, it will analyse the ways in which strategy is inevitably affected by uncertainty.

2.1 Strategy and Theories of Victory

2.1.1 The Failure of the Planning, Programming and Budgeting System

During the early 1960s, the PPBS was introduced by Secretary McNamara to the Pentagon and later extended by President Johnson to the rest of the federal government.[37] Charles J. Hitch claimed that the PPBS

> provided for the Secretary of Defense ... a system which brings together at one place and at one time all of the relevant information that they need to make sound decisions on the forward program and to control the execution of that program.[38]

Its most ardent supporters claimed that the PPBS, in conjunction with the use of methods of systems analysis, could formalize and optimise the whole process of both strategy and defence planning. Had this been the case, PPBS as originally conceived would have eliminated the need to develop a normative theory of defence planning in this thesis. A short overview on the reasons for its failure in its original form—Aaron Wildavsky concludes in a famous study that PPBS-type systems have failed "everywhere and at all times"[39]—is instructive as it demonstrates the limits of Jominian approaches, as well as the important difference between strategic planning and the making of strategy.

At its core, the PPBS was a capital budgeting system in which different programs that contributed to the same categories of output, such as 'Strategic Forces', 'General Purpose Forces' or 'Intelligence and Communications' were evaluated against each other, regardless of the service they belonged to. In order to evaluate the costs and benefits of each program, systems analysis was used to quantify both in monetary terms. Herein lay a first reason for the failure of this planning system, since the analysts who

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[36] A shorter version of this chapter has been published as: Stephan C. Frühling, 'Uncertainty, Forecasting and the Difficulty of Strategy,' *Comparative Strategy,* vol. 25, no. 1 (January-March 2006), pp. 1-13.

[37] For critical appraisals of PPBS-type systems in the US and British defence departments, see Martin, ed., *The Management of Defence*, and Michael D. Hobkirk, *The Politics of Defence Budgeting* (London: The Macmillan Press, 1983). PPBS was later revised into the Planning, Programming, Budgeting and Execution (PPBE) System.

[38] Charles J. Hitch, *Decision-Making for Defense* (Berkeley: University of California Press, 1965), p. 25.

[39] Aaron Wildavsky, *The Politics of the Budgetary Process* (Boston: Little, Brown and Company, 4th edition, 1984), p. 198.

conducted these studies disregarded characteristics of programs if they were not readily quantifiable or directly related to the performance measure (usually related to the cost of generated firepower) defined by the analyst, regardless of their relevance from a military point of view. For example, in the decision whether to procure nuclear or conventional carriers, the operational advantages of nuclear propelled vessels from longer endurance, higher speed and the capacity to carry fuel for other ships in the battle group were not considered.[40] A first important lesson that can be drawn from the experience of the PPBS is thus that those who disregard professional judgment and rely solely on formal analysis do so at their own peril.[41]

While a capital budgeting system like the PPBS can in principle provide a basis for choices between programs *within* categories, it does not do so for choices *between* categories. This is one of the reasons why the British never implemented the system to the extent that the Pentagon did, despite adopting output budgeting shortly after the introduction of the PPBS on the other side of the Atlantic.[42] In the United States, the McNamara Pentagon tried to overcome this shortcoming by extending the use of systems analysis, economic cost-benefit calculus and marginal utility analysis to strategy making itself, and 'computing', for example, the required amount of strategic nuclear forces. Enthoven and Smith explain that

> US strategic offensive forces were sized according to their ability to destroy the Soviet Union as a viable nation in a retaliatory strike. The level of destruction required—20 to 25 percent of the Soviet population and 50 percent of Soviet industry—was based on a judgment ... [that] was influenced by the fact of strongly diminishing marginal returns ... [B]eyond the level of around 400 1-megaton-equivalent delivered warheads, delivering more warheads would not significantly change the amount of damage inflicted. ... Thus, the main reason for [not procuring additional forces] is that having more would not be worth the additional cost.[43]

However, this kind of reasoning was based on a fundamental confusion between (fiscal) efficiency and (strategic) effectiveness. In other words, 400-megaton-equivalents might be the point where the 'marginal cost' in dollars of producing dead Soviet civilians was sharply rising. But this does demonstrate why killing "20 to 25 percent" of the Soviet population was enough to impose the will of the United States on the Soviet leaders (who had all personally experienced losses of such scale in the Great Patriotic War), or why that 'sufficient' number of dead Soviets was not 10, 50 or 80%. The game theoretical perspective[44] on which such 'strategy' was ultimately based reduced friction

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[40] For a good critique of systems analysis in the making of strategy, see Eliot A. Cohen, 'Guessing Game: A Reappraisal of Systems Analysis,' in *The Strategic Imperative: New Policies for American Security*, ed. Samuel P. Huntington (Cambridge, MA: Ballinger Publishing Co., 1982), pp. 163-192. For a discussion from a historical point of view, see Robert J. Leonard, 'War as a "Simple Economic Problem": The Rise of an Economics of Defense,' in *Economics and National Security*, ed. Craufurd D. Goodwin (Durham: Duke University Press, 1991), pp. 261-283.

[41] A point that will be discussed in more detail and with reference to the theoretical literature of risk management in Chapters 3 and 4.

[42] Hobkirk, *The Politics of Defence Budgeting*, p. 85.

[43] Alain C. Enthoven and K. Wayne Smith, *How Much is Enough?* (New York: Harper & Row, 1971), pp. 207-208.

[44] Philip Mirowski, 'When Games Grow Deadly Serious: The Military Influence on the Evolution of Game Theory,' in *Economics and National Security*, ed. Goodwin, pp. 227-256. See also the discussion

and uncertainty to communication problems that could be overcome by technical means such as red telephones or nuclear command and control systems.[45] The danger of such an, in the end Jominian, approach became readily apparent in Vietnam,[46] where the Johnson administration used military force to 'communicate' to the enemy that

> the costs of fighting to him outweighed the costs to the United States, and consequently that the advantages of terminating the conflict were greater than the advantages of continuing it.[47]

The second lesson that can be drawn from this episode is thus that detailed, quantified planning alone, in spite of its analytical rigour, was insufficient to formulate a workable strategy that could force US will on the enemy. PPBS failed to strike the right balance between Clausewitzian genius on the one hand and 'Jominian' analysis on the other. As the following section will explain, that failure was not an accident but inherent in the purely analytical approach that its inventors took to strategic problems.

2.1.2 Strategy Formation, Planning, Plans and Planners

What planning is and what it can and cannot achieve is a question that goes to the heart of the topic of this thesis. Mintzberg defines

> the noun *planning* to mean a formalized procedure to produce [an] articulated result, in the form of an integrated system of decisions. As for *planners*, we shall take them to be people with that title (or something similar) but without line (operating) responsibilities and so with time on their hands to worry about the future of the organization that employs them. ... We shall take the noun *plan* to mean an explicit statement of intentions ..., usually ... specific, elaborated, and documented. We shall use the verb

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of game theory in Martin Shubik, 'Game Theory: The Language of Strategy?', in *Mathematics of Conflict*, ed. Martin Shubik (Amsterdam: North-Holland, 1983), pp. 1-28. The main problem here is that the applicability of game theory to any situation is based on a number of very restrictive conditions and assumptions (Keith B. Payne, *Deterrence in the Second Nuclear Age* (Lexington, KY: The University Press of Kentucky, 1996) and Keith B. Payne, *The Fallacies of Cold War Deterrence and a New Direction* (Lexington, KY: The University Press of Kentucky, 2001) and a specific way of framing a situation (Frederic Schick, *Ambiguity and Logic* (Cambridge: Cambridge University Press, 2003), pp. 21-36.). Although nuclear strategy has left the centre stage of Western policy making since the end of the Cold War, the same ideas that shaped Western thinking then live on in the form of 'action-reaction-metaphysics' in the debates on ballistic missile defences and the 'militarization' of space. (Keith B. Payne, 'Action-Reaction Metaphysics and Negligence,' *Washington Quarterly*, vol. 24, no. 4 (Autumn 2001), pp. 109-121.).

[45] Ashton B. Carter, for example, wrote that both type I and type II errors could be reduced in strategic warning systems by better use of technology, and that "adding too many 'redundant' sensors, ... may make things worse for both error types. More sensors increase the odds of conflicting information." Ashton B. Carter, 'Sources of Error and Uncertainty,' in *Managing Nuclear Operations,* eds. Ashton B. Carter, John D. Steinbruner, and Charles A. Zraket (Washington D.C.: The Brookings Institution, 1987), p. 630.

[46] For a good discussion of the role of economic models in American 'strategy' in that war, see Meghnad Desai, 'Social Science Goes to War: Economic Theory and the Pentagon Papers,' *Survival*, vol. 14, no. 2 (March-April 1972), pp. 62-67.

[47] William Kaufman, quoted in Fred Kaplan, *The Wizards of Armageddon* (Stanford: Stanford University Press, 1983), p. 330.

> *plan*, however, to mean simply taking the future into account, whether formally *or* informally.[48]

The PPBS was introduced to the Pentagon at a time when 'strategic planning', the definition and implementation of strategy through highly formalized analytical methods, was becoming fashionable in major US companies. 'Strategic planning' is ultimately based on decision theory and thus on the conceptual separation of planning from action. It entails the analysis, in a highly formalized manner, of an organization's external and internal environment, to define objectives, develop strategies to attain these, choose a strategy, develop it in detail, and then finally implement it. However, formalized 'strategic planning' ultimately failed both in business as well as in government since

> the *structure* of orthodox planning is such that it is inherently unable to cope with contingencies like organizational rigidity and 'disobedience', turbulent change, inadequate information, time constraints, political bargaining etc.[49]

Two main aspects account for this failure: First, the use of 'rationality' as the sole basis for strategy making—ignoring other legitimate and proven approaches, such as incremental learning or political bargaining. Second, the assumption that *analytical* methods alone can be sufficient to formulate strategy (a concept discussed in detail in the following sections) and that the *synthesis* that underlies creativity is either unnecessary or not fundamentally different from analysis.[50] However, analytical and intuitive thinking have been found to complement each other in experimental studies,[51] and both differ fundamentally in the amount of time they require to arrive at a decision and the kind of data that they can use. In the defence context, both are enshrined in military doctrine[52] and essential for strategic decisions.[53] Mintzberg explains that in general,

> Formal systems could certainly process more information, at least hard information; they could consolidate it, aggregate it, move it about. But they could never *internalise* it, *comprehend* it, *synthesize* it. ... Planning by its very nature defines and preserves

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[48] Emphasis in original. Henry Mintzberg, *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners* (New York: The Free Press, 1994), pp. 31-32.

[49] Emphasis in original. Herman R. van Gunsteren, *The Quest for Control: A critique of the rational-central-rule approach in public affairs* (London: John Wiley & Sons, 1976), p. 75.

[50] Both of these points are excellently developed in detail in Mintzberg, *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners*, which surveys the extensive literature on strategic planning of the preceding three decades. Section 5.1.2 will discuss the difference between deduction, induction and abduction. Formalized processes can only deal with the first two kinds of inference, although the third is at the core of creativity.

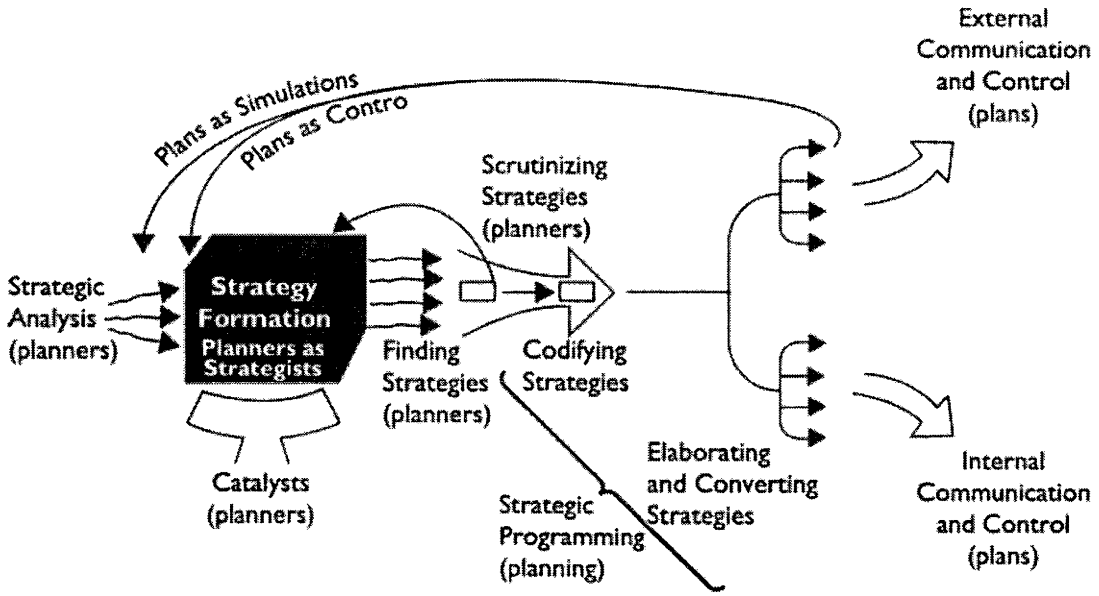
[51] J.T. Peters, K.R. Hammond, and D.A. Summers, 'A note on intuitive vs analytical thinking,' *Organizational Behaviour and Human Performance*, vol. 12 (1974), pp. 125-131. Quoted in Mintzberg, *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners*, pp. 327-328.

[52] For a discussion of analytical and intutitive decisionmaking in US Army doctrine, see William Duggan, *Coup d'Oeil: Strategic Intuition in Army Planning* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2005).

[53] Richard N. Haass, 'A Premium on Good Judgment,' *U.S. Naval War College Review*, vol. LVII, no. 3/4 (Summer/Autumn 2004), pp. 11-15.

categories. Creativity, by its very nature, creates categories, or rearranges established ones.[54]

FIGURE 1: STRATEGY FORMATION, PLANNING, PLANS AND PLANNERS



Source: Henry Mintzberg, *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners* (New York: The Free Press, 1994), p. 392.

By its very nature, a new strategy is an idea, an often at first quite blurred image in people's heads, which still has to be elaborated and converted into day-to-day operations through budgets and programs. Operationalising a strategy can thus, under specific conditions, require formal planning. In general, this will be the case in Mintzberg's 'machine organization', defined by stable internal and external environments, a large size with an elaborated structure, capital intensive operations that are tightly coupled yet fairly simple, and relatively important external control.[55] But between the strategy, an idea, and the activity of planning stands codification, the translation of the strategy into detailed methodologies, defined analytical categories, procedures and decision criteria that guide the planning effort.

In modern day defence bureaucracies, which are typical examples of machine organizations, (formal) planning systems are thus indispensable to achieve accountability, transparency, and coherence in the *administration* of strategy. However, it would be wrong to replace Clausewitzian genius in the *formation* of strategy with similar principles, as was tried during the heyday of the PPBS and the Vietnam War. Figure 1 gives an overview of the respective roles of planners, planning and plans in relation to strategy formation. Planning can operationalise and implement a strategy but not create one—a planning system is inevitably bound by pre-defined categories and

[54] Mintzberg, *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners*, p. 299.

[55] Mintzberg, *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners*, pp. 333-350. Mintzberg's typology of organizations is now a classic of organizational literature. For a discussion of the machine organization, see Mintzberg, *Mintzberg on Management: Inside Our Strange World of Organizations*, pp. 131-152.

rules, while strategy making deals with changing and re-defining these boundaries and rules within which planning operates.

Plans that result from formal planning can be used for internal and external communication and control, and they provide a feedback loop by serving as inputs into the strategy formation process. In this context, planners have two distinct broad roles: First, as strategic programmers, they do planning. Second, as strategic analysts, they support the strategy formation process. In this latter role, planners cannot use the formalized and standardized methods that characterize strategic programming, but must work largely ad-hoc and in close conjunction with those managers or officials who are developing the strategy. Planners can provide input for the strategy formation in the form of focused analysis (which in this role is valuable more for highlighting questions than for providing answers), by catalysing the process, finding strategies that are already used in the organization, or scrutinizing rough ideas in order to prepare them for codification.

2.1.3 The Dimensions of Strategy

So what exactly is strategy? For Clausewitz, it is "the use of engagements for the object of the war,"[56] the latter being "not merely an act of policy but a true political instrument, a continuation of political intercourse, carried on with other means."[57] Strategy is, in the words of Colin S. Gray "the bridge that relates military power to political purpose."[58] Since realization of the political goal is the benchmark for measuring the value of a nation's armed forces, the metric for doing so is strategic effectiveness, defined as "net impact upon the course and outcome of a conflict."[59] In general, it is not always necessary for combat to occur to achieve strategic effectiveness. Both sides can in certain situations anticipate the likely result. Deterring an enemy's action through the threat of punishment, for example, is another way of arms to be strategically effective. But, as Clausewitz remarks in *On War*, "Combat is the only effective force in war."[60] Strategic effectiveness in any form is dependent on the capability to enforce one's demands, since

> the outcome rests on the assumption that if it came to fighting, the enemy would be destroyed. It follows that the destruction of the enemy's force underlies all military actions; all plans are ultimately based on it, resting on it like an arch on its abutment. ... If a decision by fighting is the basis of all plans and operations, it follows that the enemy *can frustrate everything through a successful battle* ... Thus it is evident that destruction of the enemy forces is always the superior, more effective means, with which others cannot compete.[61]

Strategy is always conducted within a physical world, whose restrictions limit the possibilities to prepare for and to prevail in combat. Strategy is also always conducted by real and living persons, who depend on others to support them in positions of power,

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[56] Clausewitz, *On War*, p. 146.

[57] Ibid., p. 99.

[58] Gray, *Modern Strategy*, p. 17.

[59] Colin S. Gray, *Weapons Don't Make War* (Lawrence, KA: University Press of Kansas, 1993), p. 10.

[60] Clausewitz, *On War*, p. 110.

[61] Ibid., pp. 110-111.

and whose beliefs and feelings influence how they react to the enemy's physical moves. Hence adversaries must take into account numerous dimensions of strategy, accommodate the limits these dimensions impose, compensate for their relative disadvantages and exploit their relative advantages over the enemy. Determining the exact number and definition of the dimensions of strategy is less important than realizing that strategy touches on all of them at once, even if some have more influence than others on the final outcome in specific conflicts. Gray, for example, identifies the following seventeen such dimensions: People; society; culture; politics; ethics; economics and logistics; organization; military administration; information and intelligence; strategic theory and doctrine; technology; military operations; command; geography; friction, chance and uncertainty; adversary; and time.[62] Since innumerable factors from the physical as well as human side come into play if one is to compel the enemy to do one's will, strategy is at the same time a multifaceted task and a unified whole: Multifaceted, since the act of compelling touches on and is influenced by the whole range of the dimensions of strategy, all of which are important for the overall outcome. Unified, since it is a purposeful act directed at achieving a political goal.[63]

2.1.4 Strategy as Causal Relationships: The Strategic Pyramid

The strategic effect of combat—or the threat thereof—rests on several levels of conflict that support each other,[64] in what can be called a strategic pyramid* (see Figure 2). At the first level, capabilities have to be created by combining men, materiel, training, doctrine and planning. At the second level, these capabilities can be used to seek tactical success. At the third level, tactical successes can lead to operational success, which is a prerequisite for achieving strategic success itself on the fourth level. *At each level, however, each adversary will try to achieve success while preventing success of the other—conflict and interaction is inherent in the levels of strategy, and only one (or neither) of the adversaries will be successful in achieving strategic success.*

The dimensions of strategy relate to both the layers themselves, and to the relationship between them. Combat on the smallest scale rests on the physical interaction of weapons systems, but the tactical outcome of an engagement is also influenced by terrain and intangibles like doctrine, information and morale, only some of which can be prepared in advance. Operational success rests on the combination of many tactical engagements, the overall relative disposition of forces and the addition of other factors like available logistics support and the quality of intelligence, command and control. But operational success is also only a necessary, not a sufficient condition for strategic success in achieving political goals. One of the main additional factors that intervene here is the capacity and willingness of the society and economy to bear the cost of even an operationally successful campaign.[65]

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[62] Gray, *Modern Strategy*, pp. 26-44.

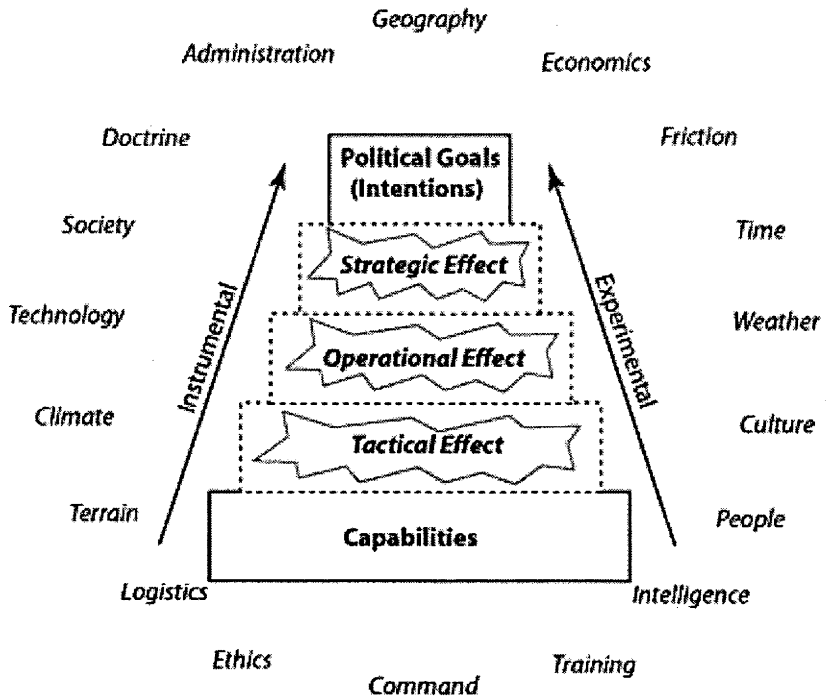
[63] See Glenn A. Kent and William E. Simons, 'Objective-Based Planning,' in *New Challenges for Defense Planning: Rethinking How Much Is Enough*, ed. Paul K. Davis (Santa Monica: RAND, 1994), pp. 59-71.

[64] Edward N. Luttwak, *Strategy: The Logic of War and Peace* (Cambridge, MA: The Belknap Press of Harvard University Press, revised and enlarged edition, 2001), pp. 87-91.

[65] See, for example: Lawrence E. Key, 'Cultivating National Will,' *Maxwell Paper* no. 5 (Maxwell AFB, AL: Air War College, 1996) and Edward N. Luttwak, 'Toward Post-Heroic Warfare,' *Foreign Affairs*, vol. 74, no. 3 (May/June 1995), pp. 109-122.

Historic examples of failures to translate superiority at one level into success at a higher one abound: Despite inferior capabilities, Chadian troops on jeeps and trucks destroyed Libyan armoured units in December 1986 and early 1987, and in September 1987 even conquered and destroyed an airbase on Libyan soil. Eight US servicemen died in the Desert One fiasco of 1980, failing even to make contact with Iranian forces.[66] Nor does tactical excellence automatically translate into operational success, as the German leadership in the Second World War (WWII) discovered, for example, when it ignored hopelessly overstretched supply lines in North Africa and Russia.

FIGURE 2: THE STRATEGIC PYRAMID



To transform operational into strategic success is very straightforward, although bloody, for a state willing and able to impose a Carthaginian peace on its enemy. For all others, this last step of the strategic pyramid is perhaps the most difficult part.[67] Pyrrhus' failure to derive lasting gains from his numerous battlefield victories in Southern Italy is only one of many similar examples: Germany, again, failed twice in the 20th century, between 1914 and the summer of 1918 and between 1939 and the winter of 1941, as did the United States first after the defeat of the Tet offensive in Vietnam and, arguably, again after the eviction of Saddam Hussein's army from Kuwait.[68] Unless the outcome of preparation and planning, tactical action and operations leads to strategic success in

[66] Desert One was the codename for the attempt by US special forces to rescue the hostages in the US embassy in Tehran.

[67] Unless they have both very limited objectives and such a superiority in material and numbers that they can physically control the whole population of the enemy until they are achieved. Such was, for example, the situation of the United States in Grenada in 1983.

[68] See Paul Seabury and Angelo Codevilla, *War: Ends & Means,* (New York: Basic Books, Edition with a preface on the Gulf War, 1990), pp. vii-xxviii, for a lucid discussion of the first round of that 1990-2003 war.

achieving the political goal, the whole effort was usually for naught—whatever brilliance has been displayed at a lower level.[69]

Strategy can thus be thought of as the ever-changing system of causal relationships that constitutes the dynamic strategic pyramid in a particular conflict, which is its first nature. The term 'strategy' will thus in the following be reserved to denote this aspect of the relationship between military force and political goals. Strategy as such is, therefore, at work in success and failure alike, and it is usually easy in hindsight to identify the causes for either.

2.1.5 Strategy as a Course of Action: The Theory of Victory

Unfortunately, this ease of explanation *ex-post* stands in stark contrast to the difficulty of 'doing' strategy. In the here and now, it is necessary to develop a specific course of action *ex-ante* that provides a coherent, credible and realistic way to achieve the political goal with the available resources.[70] This is the second nature of strategy, where it denotes an intended or realized course of action.[71] Since strategy is inevitably directed at the future, practitioners must forecast the cause-effect relationships that will underlie the strategic effect—a fundamentally different and much more difficult problem than identifying them after the fact.

It is thus helpful to conceive of 'doing' strategy as the testing of a theory: Reality will (nearly) always falsify the predicted cause-effect relationships and the parameters underlying it, or, as the elder Moltke said, 'no plan for battle survives contact with the enemy'. In the following, this second nature of strategy will thus be referred to as a 'theory of victory', a term that can also more easily capture the fact that the possibility of conflict not only leads to interaction with the enemy (i.e. strategy itself), but also to the preparation for such interaction at a future point in time. In that context, theories of victory can achieve strategic effect through direct military impact on the enemy, if a country carries 'strategic weight', or indirectly through the military efforts of allies if it does not. In the latter case, the core of the theory of victory will then relate to the problem of how to enlist the support of these allies.

The execution of strategy produces information that is specific to the situation, and which has to be used to validate and change the forecasts that the original plan was based on.[72] Implementations of policy in general are based on a policy or program theory, and

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[69] Samuel J. Newland, *Victories Are Not Enough: Limitations of The German Way of War* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2005).

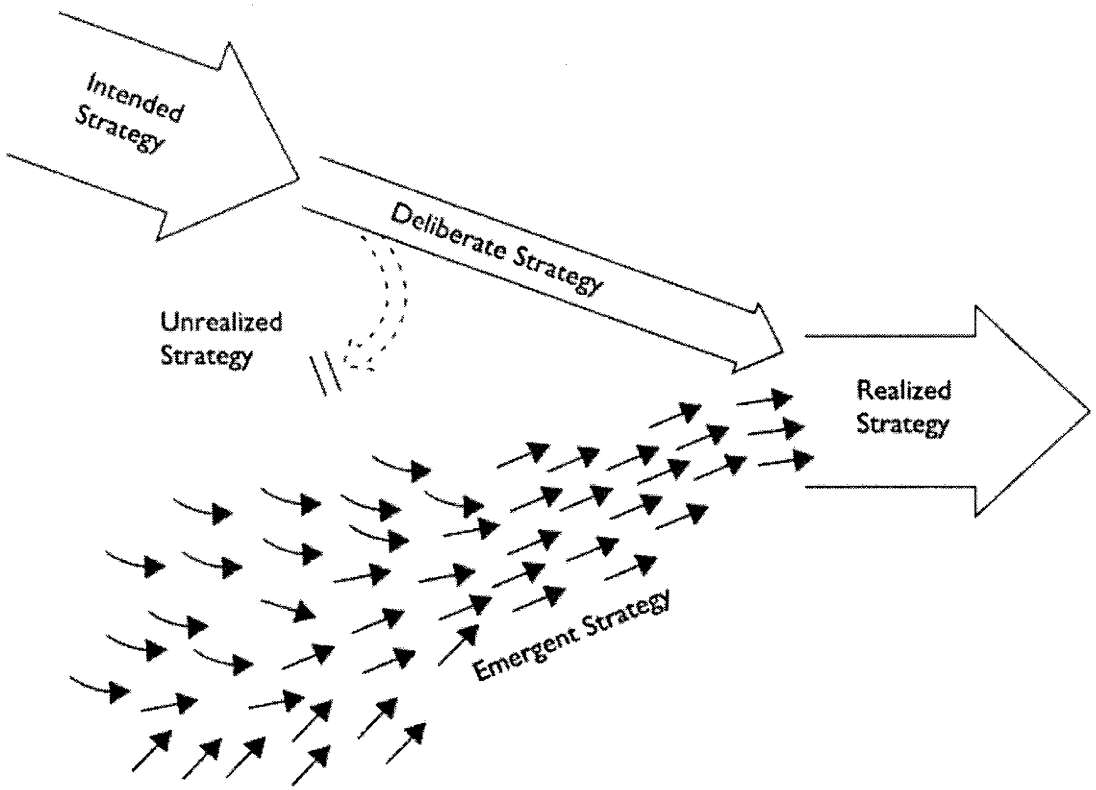
[70] As part of a coherent theory of victory, the material requirements for the operational outcome necessary to achieve strategic effect can actually be quite minimal. Asian land powers, for example, have a habit of wearing down the national will of their overseas enemies by just preserving enough stamina to keep on fighting.

[71] For a general discussion of strategy as a course of action, see Jenny Stewart, 'The meaning of strategy in the public sector,' *Australian Journal of Public Administration*, vol. 63, no. 4 (December 2004), pp. 16-21.

[72] S. Blume, 'Policy as Theory: A framework for understanding the contribution of social science to welfare policy,' *Acta Sociologica*, vol. 20, no. 3 (1977), pp. 247-262.

> If this theory is fundamentally incorrect, the policy will fail no matter how well it is implemented. Indeed it is not exactly clear what 'good' implementation of a basically misconceived policy would mean.[73]

FIGURE 3: STRATEGY AS A COURSE OF ACTION



Source: Henry Mintzberg, *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners* (New York: The Free Press, 1994), p. 24.

While a theory of victory, or 'Intended Strategy' in Figure 3, must always be complemented with largely ad-hoc adjustments during its implementation, the challenge is to recognize when 'negative feedback' signifies that the theory itself is flawed. It is at this stage that leadership often fails: Especially in peacetime, when no battle provides 'hard data' on how good one's forces can really perform, it is easy for policymakers to use ambiguity to avoid facing uncomfortable truths,[74] and thus to stick to old paradigms.[75] And it is often difficult to identify the causes of failure—was it an error in the 'data', which can be corrected by throwing even more men and material into the battle? Or is the 'model' that is used to predict strategic effect itself incorrect or incomplete—such as was the case in the First World War (WWI), when the German High Command predicted the physical and economic effects of unlimited submarine

[73] E. Bardach, *The Implementation Game* (Cambridge: Cambridge University Press, 1977), pp. 251-252.

[74] Roberta Wohlstetter, 'Slow Pearl Harbours and the Pleasures of Deception,' in *Intelligence and National Security*, eds. Robert L. Pfaltzgraff, Uri Ra'anan and Warren Milberg (Hamden, CT: Archon Books, 1981), pp. 23-34.

[75] Thomas S. Kuhn, *The Structure of Scientific Revolutions* (Chicago: University Of Chicago Press, 1962).

warfare with surprising accuracy, but never questioned its assumption that this would force England to sue for peace?[76]

Criticizing inductive reasoning, David Hume demonstrated long ago that all forecasts—"predictions on the basis of past behaviour"[77]—are inherently unreliable: If one was to show that the knowledge of the past can be transferred into the future, it would only be possible to do so by referring to the experience of the past itself, which is exactly the reasoning in question.[78] "The lesson of epistemology is thus a harsh one: there is no ... way in which predictions can be known in advance to be true or false."[79] In science, it is uncommon (though not unheard of) that a wrong hypothesis can cost someone's life. That this is usually the case in strategy, and often on a scale incomparably larger than in any other area of human activity, does not change the basic problem that hypotheses and forecasts can be, and often are, wrong.[80] There is an inherent conflict between the need to 'test' and validate a theory of victory on the one hand and the need to achieve results with limited resources on the other hand. It is this tension between the requirement for a coherent conception of future effects on which to base one's action, and the sheer impossibility of finding all expectations fulfilled, that makes 'doing' strategy so difficult.[81]

2.2 Sources of Uncertainty in Strategy

This section introduces four basic sources of uncertainty that equate the practice of strategy to a leap into the dark.[82] Partly, these are uncertainties of the ontological kind, inherent to the nature of strategy as a system of cause-effect relationships. Partly, they are also epistemic, affecting the extent to which it is possible to gain information about the strategic problem at hand.

2.2.1 Aleatory Uncertainty

Aleatory[83] uncertainty is the first principal source of (ontological) uncertainty in strategy and refers to "the uncertainty inherent in a nondeterministic (stochastic,

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[76] Iklé, *Every War Must End*, pp. 42-50.

[77] Charles F. Doran, 'Why Forecasts Fail,' *International Studies Review,* vol 1, no. 2 (1999), p. 11.

[78] Nicholas Rescher, *Predicting the Future* (Albany: State University of New York Press, 1998), p. 64.

[79] Woodrow J. Kuhns, 'Intelligence Failures: Forecasting and the Lessons of Epistemology,' in *Paradoxes of Strategic Intelligence*, eds. Richard K. Betts and Thomas G. Mahnken (London: Frank Cass, 2003), p. 93.

[80] Wayne G. Jackson, 'Scientific Estimating,' *Studies in Intelligence*, vol. 9, no. 3 (Summer 1965), pp. 8-9.

[81] Klaus Knorr and Oskar Morgenstern, 'Political Conjecture in Military Planning,' *Policy Memorandum*, no 35 (Princeton: Center of International Studies, Princeton University, 1968), pp. 8-19. Other, related causes such as the difficulty in training strategists are outlined in Colin S. Gray, 'Why Strategy is Difficult,' *Joint Force Quarterly*, no. 22 (Summer 1999), pp. 6-12.

[82] Distinguishing by sources of uncertainty seems a more useful starting point than merely describing it, such as in the Volatility, Uncertainty, Complexity and Ambiguity (VUCA) framework used at the U.S. Army War College. See Harry R. Yarger, *Strategic Theory for the 21st Century: A Little Book on Big Strategy* (Carlisle: Strategic Studies Institute, U.S. Army War College, 2006), pp. 17-29.

[83] From the Latin word for a game of dice, alea.

random) phenomenon".[84] Commonly called randomness, it pervades life and can be found in quantum mechanics in physics, mechanical faults in engineering, stochastic 'white noise' in economic estimations, cancer and other illnesses in medicine, and even in the form of social indeterminacy—the voting paradox of de Condorcet, for example. The human tendency to think in terms of averages eliminates aleatory uncertainty from many daily problems, but there can be little consolation in the fact that one's expectation is right in the mean, if all stakes depend on one draw.

2.2.2 Complex Systems

The second major cause of uncertainty in strategy is the existence of dynamic systems characterized by non-linearity and complexity. Non-linearity means that cause-effect relationships are not proportional, a growing imbalance might, for example, remain without effect for some time before leading to a sudden system change. Complexity refers to the intermeshing of individual sub-systems, with the overall system state being the result not only of the individual components, but also of their relationships. In a complex system, the analysis of the individual sub-systems alone is not sufficient to understand the overall outcome.[85] The behaviour of even fairly simple examples of such systems is often unpredictable over the long term, a phenomenon referred to as chaotic dynamics. Complex systems can undergo sudden changes of their state, so-called bifurcations, and show self-organized formation of structures in space or time.[86] Information in a complex *physical* system is processed in a mechanical fashion—planetary movements or technological systems are examples for this—while complex *adaptive* systems observe patterns, form schemata and act upon these—as is the case in, for example, human minds and stock markets.[87]

Patterns in a complex system show 'retrospective coherence': they can be identified *ex-post*, but cannot be predicted. Since the pattern is just one among several that are possible *ex-ante*, the possibility of purposefully acting upon a complex system is fundamentally limited. It is usually impossible to direct complex organizations or to control events in complex systems, but it is possible to stabilize beneficial, and de-stabilize unwanted, patterns. Information can be gained by probing the system and observing its reactions. In the truly chaotic domain, however, which shows neither perceivable cause-effect relations, nor behavioural patterns, analytical approaches and pattern management will both fail.[88]

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[84] National Research Council, *Review of Recommendations for Probabilistic Seismic Hazard Analysis: Guidance on Uncertainty and Use of Experts Society* (Washington D.C.: The National Academy Press, 1997), p. 31.

[85] Complexity does not fall neatly into either the epistemic or the ontological category, as it is related to the observer's ability to gain knowledge, but at the same time a characteristic of the matter under investigation itself, not of the observer or the process of gaining knowledge.

[86] Advisory Council on Global Change, *World in Transition: Strategies for Managing Global Environmental Risks* (Berlin: Springer, 2000), pp. 194-196.

[87] For an introduction to complex adaptive systems, see for example Mitchell Waldrop, *Complexity: The Emerging Science at the Edge of Order and Chaos* (New York: Touchstone, 1992).

[88] C. F. Kurtz and D. J. Snowden, 'The new dynamics of strategy: Sense-making in a complex and complicated world,' *IBM Systems Journal*, vol. 42, no. 3 (2003), pp. 462-483.

2.2.3 Cognitive, Mental and Physiological Limits

Humans are limited in their cognitive, mental and physiological abilities to process information, which is a third and epistemic source of uncertainty. Lawrence Freedman writes that "whatever the possibilities for 'real-time' military decision and action, policy formulation and political persuasion tend to take time."[89] But time is always a limited resource: At an individual level, time is required to fulfil certain basic physiological needs, sleeping at the very least. This causes an opportunity cost of using time for the processing of information that can become overwhelmingly high. Using time for deliberation also inevitably delays action, causing an important opportunity cost in the strategic context, as John R. Boyd pointed out in his theory of the OODA (observation, orientation, decision, action) loop.[90] The opportunity cost of reducing uncertainty thus makes it rational to stop gathering information before the theoretical limits of knowledge are reached.[91]

Other limits on reducing uncertainty are caused by imperfect human sensory information storage, short- and long-term memory. The human mind forms mind-sets or schemata of the real world to make use of the mind's limited resources. Humans use such schemata to interpret, order and store pieces of information. Problems are only perceived once certain observations violate the model of normalcy, and it takes longer to recognize unexpected phenomena than expected ones.[92] Human nature thus leads to cognitive traps (blunders and lapses) as well as errors, which are purposeful acts on the basis of wrong assumptions or faulty reasoning.[93] In a social context, human nature leads to translational uncertainty if information has to be exchanged between individuals,[94] and the reinforcement of incorrect mental models through 'groupthink' and similar processes.[95] Experimental studies have also established that the human mind is biased in its perception of risk and uncertainty.[96]

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[89] Lawrence Freedman, 'The Revolution in Strategic Affairs,' *Adelphi Paper*, no. 318 (London: International Institute for Strategic Studies, 1998), p. 44.

[90] Boyd never wrote a comprehensive summary of his ideas and mostly relayed them through briefings. For a good summary, see Fadok, *John Boyd and John Warden: Air Power's Quest for Strategic Paralysis.*

[91] George J. Stigler, 'The Economics of Information,' *Journal of Political Economy*, vol. 69, no. 3 (June 1961), pp. 213-225.

[92] Paul R. Kleindorfer, Howard C. Kunreuther, and Paul J.H. Schoemaker, *Decision Sciences: An Integrative Perspective* (Cambridge: Cambridge University Press, 1993), pp. 24-44; Richards J. Heuer, *The Psychology of Intelligence Analysis* (Langley: Center for the Study of Intelligence, Central Intelligence Agency, 1999).

[93] Advisory Council on Global Change, *World in Transition: Strategies for Managing Global Environmental Risks*, pp. 279-282.

[94] Thomas Hellstöm and Merle Jacob, *Policy Uncertainty and Risk: Conceptual Developments and Approaches* (Boston: Kluwer Academic Publishers, 2001), p. 16-19.

[95] Irving Janis, *Victims of Groupthink: A Psychological Study of Foreign Policy Decisions and Fiascoes* (Boston, MA: Houghton-Mifflin, 1972).

[96] For a discussion of these results in a military context, see R.J. Knighton, 'The Psychology of Risk and its Role in Military Decision-Making,' *Defence Studies*, vol. 4, no. 3 (Autumn 2004), pp. 309-334.

2.2.4 The Enemy

"War is nothing but a duel on a larger scale," Clausewitz writes, "an act of force to compel our enemy to do our will."[97] Général Beaufre's definition of strategy as "*the art of the dialectic of two opposing wills using force to resolve their dispute*"[98] expresses the same idea in perhaps more sophisticated language. The adversary himself is a fourth major, ontological source of uncertainty in strategy. Both sides in the struggle use violence and the threat thereof to bring the enemy into a situation in which he accepts what the other side has in mind for him. In the words of J.C. Wylie, the common aim of both adversaries is to achieve "some measure of control over the enemy."[99] Each side has to try to exercise control at the same time as prevent the enemy from doing likewise, leading to a dynamic process vividly described by Général Beaufre in the following words:

> In this battle of wills two broadly similar systems will confront each other; each will try to reach the other's vitals by a preparatory process, the object of which will be to strike terror, to paralyse and to surprise ... Since each of the opposing sides will be doing the same thing, there will be a clash between the two preparatory manoeuvres. Victory will go to the side which succeeds in blocking his enemy's manoeuvre and carrying his own through to its objective... The battle of wills therefore comes down to a struggle for freedom of action, each side trying to preserve freedom of action for itself and deny it to the enemy.[100]

In this contest, it can obviously be advantageous to mislead the enemy of one's true capabilities and intentions (both in strategic, operational and tactical terms).[101] In general, the effect of surprise is a powerful force multiplier, since it suspends the dialectic logic of strategy while the enemy has to re-orient himself and adapt to the new situation.[102]

The adversary's expectations are thus a major factor in each side's decisions in war, as they determine which moves the enemy guards against. A seemingly unfavourable option—a narrow and winding road, for example—can be preferred to a seemingly better one—the straight highway—exactly because the enemy will expect his opponent to use the latter one. This "paradoxical logic" lies in the nature of strategy, which, as Luttwak writes, entails "the coming together, even the reversal, of opposites."[103] Since it is in the interest of each side to surprise the other in order to delay its reaction, the nature of strategy causes an important epistemic paradox: Our mere knowledge of the

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[97] Clausewitz, *On War*, p. 83.

[98] Emphasis in original. André Beaufre, *An Introduction to Strategy* (London: Faber and Faber, 1965), p. 22.

[99] Wylie, *Military Strategy: A General Theory of Power Control,* p. 66.

[100] Beaufre, *An Introduction to Strategy*, pp. 34-35.

[101] For a discussion of deception, intelligence and surprise in classic strategic theory, see Handel, *Masters of War*, pp. 215-254.

[102] James J. Wirtz, 'Theory of Surprise,' in *Paradoxes of Strategic Intelligence*, eds. Betts and Mahnken, pp. 101-116.

[103] Luttwak, *Strategy: The Logic of War and Peace*, p. 16. The perhaps best demonstration of the paradoxical logic of strategy can be found in the challenge of the poisoned chalice in the 1987 movie *The Princess Bride.*

state of the world can invalidate itself. If, in Luttwak's famous example, the defending side gains knowledge of the enemy's plan to advance along the narrow, winding road and takes preparations accordingly, the expected attack might not materialize *exactly because* it was expected. Far from being of mere academic and theoretical interest, this effect probably contributed to the cancellation of an Egyptian attack on Israel in May 1973.[104]

2.3 Uncertainty in a Theory of Victory

Strategy in practice requires the forecasting of future cause-effect relationships—otherwise, it would be impossible to undertake any purposeful activity in war. But the four kinds of uncertainty outlined above lead to the fact that it is impossible to be certain that expectations will be fulfilled, if they can be formed with any confidence at all. This last section will thus outline the impact of the four first-order kinds of uncertainty discussed above on different aspects of the process of making and executing strategy, as summarized in Figure 4.

FIGURE 4: UNCERTAINTIES IN STRATEGY

		Sources of Uncertainty			
		Aleatory Uncertainty	*Complex Systems*	*Human Limitations*	*Enemy*
Uncertainty in the Theory of Victory	*International System*	+	++		+
	Intelligence and Deception			++	++
	Friction	++	++	++	
	Strategic Interaction		++		++
	Technology and RMAs		++	+	++

+: Minor Contribution *++: Major Contribution*

2.3.1 The International System

Strategy is always conducted in the context of a wider international system. In the short term, both sides of a conflict have to take into account not only the enemy, but also other powers that are not directly party to the dispute. The international system is the arena that sets the conditions for the struggle between two adversaries. In the longer term, the international system is also the source of new enemies that have to be met with the threat or use of military force—which requires states to make a decision on the level of military preparation that they deem sufficient to meet these future threats. In order to do strategy in practice, it is therefore necessary to form expectations on how the international system 'works'. In his classic *Man, the State and War*, Kenneth N. Waltz introduces three levels of analysis that are necessary to do so: The influence of individuals, the domestic politics within states, and the anarchical relationship between

[104] Janice Gross Stein, 'The 1973 Intelligence Failure: A Reconsideration,' *The Jerusalem Quarterly*, vol. 24, no. 7 (Summer 1982), pp. 51-52.

states.[105] All three levels influence each other and interact, and in doing so form a complex system *par excellence*.[106] It is possible to identify political, social, economic, technological and other trends in the system *ex-post*, but the future will be determined more by their interaction and the way that future governments and societies react to them than the trends themselves. 'Expert' forecasts, inevitably based on part experience, regularly turn out to be wide off the mark,[107] and the historical record regarding the prediction of major events—the end of the Cold War, for example—or of qualitatively new 'super threats' that have not been encountered for generations—such as the Huns, Mongols or Third Reich—is quite poor.[108]

Besides the complexity of the international system, which is the primary reason for the difficulty of forecasting at that level, aleatory uncertainty is also important in as far as it can decisively affect the lives of important individuals: Had Archduke Franz Ferdinand survived in Sarajevo in 1918 or Hitler been killed by the bomb that exploded only minutes after he had left Munich's Bürgerbräukeller in 1939, for example, history could easily have taken a very different turn. The enemy can also play a role in bringing about unexpected events and trends in the international arena. It is, for example, somewhat counterintuitive that Cuba should be engaged in warfare on the African continent in a major way. A forecast to that effect by a Western expert would, probably rightly so, have been regarded with some scepticism. In any case, would this have been a specialist in Cuban, African or Soviet affairs?

2.3.2 Intelligence and Deception

The difficulty in predicting non-linear changes is compounded by the fact that the process of gaining information about the current state of the international system, which might give indications of impending change, is inevitably fallible. Many realignments of alliances, such as the Molotov-Ribbentropp Pact or Sadat's peace offer, were major diplomatic surprises—due to the inherent limitations of intelligence.[109] Obtaining information requires time,[110] and perceiving and processing it is inevitably affected by the cognitive and mental limitations of the human mind.[111] During the Cold War in particular, the tendency of analysts to use mirror-imaging in assessments of the Soviet Union highlighted the role of mind-sets in intelligence. Since mind-sets are both the key to correct judgments and a cause of possible failure, occasional intelligence surprise

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[105] Kenneth N. Waltz, *Man, the State and War* (New York: Columbia University Press, 1954).

[106] For a collection of good essays on this perspective, see David S. Alberts and Thomas Czerwinski, eds., *Complexity, Global Politics, and National Security* (Washington D.C.: National Defense University Press, 1998).

[107] For examples, see Steven Rieber, 'Intelligence Analysis and Judgmental Calibration', *International Journal of Intelligence and Counterintelligence*, vol. 17, no. 1 (Spring 2004), pp. 97-112; Richard Hundley, *Past Revolutions, Future Transformations* (Santa Monica: RAND, 1999), pp. 43-44. For a theoretical discussion of the problem of non-linearities in forecasting, see Doran, 'Why Forecasts Fail'.

[108] Gray, *Weapons Don't Make War*, pp. 92-99.

[109] Michael I. Handel, 'Surprise in Diplomacy,' in *Intelligence and National Security*, eds. Pfaltzgraff, Ra'anan and Milberg, pp. 187-211.

[110] Angelo D. Codevilla, *Informing Statecraft* (New York: The Free Press, 1992), pp. 5-6.

[111] Robert Jervis, 'Hypotheses on Misperception,' *World Politics*, vol. 20, no. 3 (April 1968), pp. 454-479.

is inevitable.[112] Individual cognitive limitations are to some extent replicated and reinforced by the institutional context of intelligence: Tasking orders for intelligence collection require some previous conception of what will or can be found, for example, and the necessary compartmentalization of classified material forces analysts to make forecasts on the basis of less information than could be available to them.[113]

Besides human cognitive and mental limitations, the enemy is a second, complementary source of uncertainty regarding forecasts based on intelligence information, since mind-sets and biases can be used for successful deception.[114] A first type of deception aims at changing observable data and can, for example, lead the enemy to believe in the existence of a phantom army, or conceal an existing one from his collection effort. To unravel and detect either scheme, it is necessary to collect more data over more channels and to subject it to inductive reasoning, trying to discover the correct pattern from the observations. A second type of deception aims at distorting the adversary's interpretation of observable events, misleading him to believe that preparations for an attack are mere exercises, for example. Collection of additional information here will merely reinforce the false conception, but the deductive reasoning that can unveil this kind of deception—taking a pattern as valid and asking what it signifies—would

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[112] The record of the US National Intelligence Estimates (NIE) in predicting Soviet Strategic Nuclear forces during the Cold War was very mixed, as a significant overestimation of Soviet capabilities during the late 1950s and early 1960s was followed by a consistent underestimation in the late 1960s and early 1970s (Albert Wohlstetter, 'Racing Forward or Ambling Back?' in *Defending America*, ed. James Schlesinger (New York: Basic Books Inc., 1977), pp. 110-168.). The 1976 B-team on Soviet intentions, an external penal set up to produce an alternative analysis to the internal Central Intelligence Agency (CIA) team, found that the assumptions that these estimates were based on were at fault. It pointed out that the intelligence community had concentrated on 'hard data' on Soviet deployments, and interpreted these with concepts that mirrored those of the United States but did not take into account the 'soft' data available on Soviet doctrine regarding, for example, the relationship between nuclear deterrence and warfighting ('B-Team', *Soviet Strategic Objectives: An Alternative View*: Reproduced in Donald P. Steury, ed., *Intentions and Capabilities: Estimates on Soviet Strategic Forces, 1950-1983* (Langley, VA: Center for the Study of Intelligence, Central Intelligence Agency, 1996), pp. 365-390.). In the context of the 1970s, such mindsets directly led to politically contested judgements in the NIEs regarding, for example, instances of Soviet arms control deception (David S. Sullivan, 'Evaluating US Intelligence Estimates,' in *Intelligence Requirements for the 1980's: Analysis and Estimates*, ed. Roy Godson (New Brunswick: National Strategy Information Centre, 1980),pp. 49-73.), or upgrades to the Soviet air defence system that may have given it an improved capability to intercept ballistic missiles (Sayre Stevens, 'The SAM Upgrade Blues,' *Studies in Intelligence*, vol. 18, no. 2 (Summer 1974), pp. 21-35.). The Jeremiah and Rumsfeld commissions of the late 1990s both criticized continuing mirror-imaging and a lack of empathy in the intelligence community's analysis. In the following years, more emphasis was therefore placed on alternative analysis—methods such as key assumptions checks, devil's advocacy, Team A/Team B, Red Cells, Contingency 'What If' Analysis, High Impact/Low Probability analysis, and Scenario Development—which, however, did not prevent the failure in assessments of Iraq before the invasion in 2003. (Jack Davis, 'Improving CIA Analytic Performance: Strategic Warning,' *Occasional Paper,* vol. 1, no. 1 (Langley: Sherman Kent Centre for Intelligence Analysis, Central Intelligence Agency, 2002); Roger Z. George, 'Fixing the Problem of Analytical Mind-Sets: Alternative Analysis,' *International Journal of Intelligence and Counterintelligence*, vol. 17, no. 3 (July-September 2004), pp. 393-398.).

[113] Bruce Berkowitz and Allan E. Goodman, *Strategic Intelligence for American National Security* (Princeton: Princeton University Press, 1989).

[114] Richards J. Heuer, 'Cognitive Factors in Deception and Counterdeception,' in *Strategic Military Deception*, eds. Donald C. Daniel and Katherine L. Herbig (New York: Pergamon Press, 1982), pp. 31-69.

reinforce a deception of the first kind.[115] Since it is impossible to know *ex-ante* what kind of deception to expect, the uncertainty in intelligence caused by the existence of the enemy cannot be eliminated.

2.3.3 Friction

The outcome of any action in war is subject to the uncertainty caused by friction—a phenomenon that has also been implicated in accidents in complex technological systems.[116] "Friction is the only concept that more or less corresponds to the factors that distinguish real war from war on paper,"[117] Clausewitz himself explained, and it should thus indeed be part of any theoretical writing on strategy and war.[118] Clausewitz further writes that

> Countless minor incidents—the kind you can never really foresee—combine to lower the general level of performance, so that one always falls far short of the intended goal ... The military machine—the army and everything related to it—is basically very simple and therefore seems easy to manage. But we should bear in mind that none of its components is of one piece: each part is composed of individuals, every one of whom retains his potential of friction... The dangers inseparable from war and the physical exertions war demands can aggravate the problem... This tremendous friction, which cannot, as in mechanics, be reduced to a few points, is everywhere in contact with chance, and brings about effects that cannot be measured, just because they are largely due to chance.[119]

The sources of friction are thus the complex nature of military forces ("none of its components is of one piece"),[120] human limitations ("dangers inseparable from war and the physical exertions war demands") and the aleatory uncertainty that is inherent stochastic processes ("chance").

2.3.4 Strategic Interaction or General Friction

Friction in a narrow sense is complemented in Clausewitz's work by a concept of general friction—allowing for some overlap between the concepts of friction on the one hand and the psychological 'fog of war,' the clouding of thought due to emotions

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[115] Edward J. Epstein, 'Incorporating Analysis of Foreign Government's Deception into the US Analytical System,' in *Intelligence Requirements for the 1980's: Analysis and Estimates*, ed. Godson, pp.127-129; Donald C. Daniel and Katherine L. Herbig, 'Propositions on Military Deception,' in *Strategic Military Deception*, eds. Daniel and Herbig, pp. 3-30.

[116] C. Perrow, *Normal accidents: Living with high-risk technologies* (Princeton: Princeton University Press, 1999), esp. pp. 62-100.

[117] Clausewitz, *On War*, p. 138.

[118] Paret, 'Clausewitz,' p. 199.

[119] Clausewitz, *On War*, pp. 138-139.

[120] Alan Beyerchen, 'Clausewitz, Nonlinearity, and the Unpredictability of War,' *International Security*, vol. 17, no. 3 (Winter 1992/93), pp. 59-90; Barry D. Watts, 'Clausewitzian Friction and Future War,' *McNair Paper*, no. 68 (Washington D.C.: Institute for National Strategic Studies, National Defense University, Revised Edition, 2004), pp. 67-76.

aroused by danger and stress, on the other hand.[121] Barry D. Watts identifies eight elements in *On War* that combine to form general friction:

1. danger's impact on the ability to think clearly and act effectively in war
2. the effects on thought and action of combat's demands for exertion
3. uncertainties and imperfections in the information on which action in war is unavoidably based
4. friction in the narrow sense of the internal resistance to effective action stemming from the interactions between the many men and machines making up one's own forces
5. the play of chance, of good luck and bad, whose consequences combatants can never fully foresee
6. physical and political limits to the use of military force
7. unpredictability stemming from interaction with the enemy
8. disconnects between ends and means in war.[122]

In his study—the most detailed of the concept yet—Watts reformulates Clausewitz's eight sources of friction into a more modern typology of three contributing factors:

- constraints imposed by human physical and cognitive limits, whose magnitude and effects are inevitably magnified by the intense stresses, pressures, and responsibilities of actual combat
- informational uncertainties and unforeseeable differences between perceived and actual reality stemming, ultimately, from the spatial-temporal dispersion of information in the external environment, in friendly and enemy military organizations, and in the mental constructs of individual participants on both sides
- the structural nonlinearity of combat processes which can give rise to the long-term unpredictability of results and emergent phenomena by magnifying the effects of unknowable small differences and unforeseen events (or, conversely, producing negligible results from large differences in inputs).[123]

General friction thus applies to strategy as a whole and not only to combat in a more limited, technical sense. It affects activity 'within' the levels of the strategic pyramid, for example the results of tactical engagements or the success of operational concepts. But it also affects the strategic effect of any activity, the extent to which it contributes to success at a higher level. General friction stems from the fact that the strategic pyramid itself is a complex system—notwithstanding the writings of Jominian theorists.

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[121] Stephen J. Cimbala, *Clausewitz and Chaos: Friction in War and Military Policy* (Westport: Praeger, 2001), pp. 3-4, 10-11.

[122] Watts, 'Clausewitzian Friction and Future War,' pp. 19, 21.

[123] Ibid., pp. 76-77.

There is never only one possible pattern that could develop in reaction to one's moves: Each side will try to prevent the other from being strategically effective, and its reaction can occur at the same level of the pyramid as the original action. A new capability to destroy tanks in the desert from standoff distances can, for example, be made less effective by camouflage to prevent detection, or the introduction of better air defences. Patterns of this kind are relatively easy to predict and accommodate, since the same people who developed the original action—in this case, primarily the engineers and scientists who built the new sensors, missiles and related equipment—are also best equipped to evaluate the feasibility and effectiveness of countermeasures *in kind.* But the strategic effectiveness of one's actions can also be reduced or neutralized if the enemy changes patterns on other steps of the strategic pyramid. Reactions of this kind are much more difficult to forecast and accommodate since to do so requires an understanding and consideration of not a limited technical or tactical question, but of all parts of the theory of victory and the strategic pyramid that stands behind it. If the enemy, in the above example, gives up the desert and, instead, fights in densely built-up cities, the performance of the systems that can detect and destroy tanks in open terrain is not impeded in any way, but their utility in the pursuit of strategic effectiveness is nevertheless severely reduced.[124] It is impossible to determine which of these, or any of the countless other possible patterns, will materialize in the end—all that is possible is to use, in a never ending cycle, another counter-action to 'destabilize' the enemy's reaction. Success in strategy breeds uncertainty precisely because the adversary will be alert to any attempt to repeat the formula.

2.3.5 Technology and Revolutions in Military Affairs

Throughout the history of warfare, periods of technological and tactical continuity have been broken by periods of fundamental change, after which post-adaptation forces were significantly more militarily effective than those before that change. Richard Hundley defines such Revolutions in Military Affairs (RMAs) as

> a paradigm shift in the ... conduct of military operations
>
> - which either *renders obsolete or irrelevant* one or more *core competencies* of a dominant player
> - or creates one or more new core competencies, in some ... dimension of warfare
> - or both[125]

It is the magnitude of these changes rather than the speed with which they have been introduced that distinguishes RMAs from ordinary improvements.[126] RMAs change the grammar or character of war—the way that military force is used to neutralize or destroy the enemy's forces (but not its logic or nature, the fact that war is an activity aimed at the achievement of political goals, and that it is comprised of the

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[124] Luttwak, *Strategy: The Logic of War and Peace.*

[125] Emphasis in original. Hundley, *Past Revolutions, Future Transformations*, p. 9.

[126] James R. FitzSimonds and Jan M. van Tol, 'Revolutions in Military Affairs,' *Joint Force Quarterly* (Spring 1994), p. 25.

Clausewitzian trinity of blind emotion, chance and politics).[127] Military core competencies are 'core' since they are necessary to prevail in war—they are part of the system of causal relationships that underlies the strategic pyramid and thus transforms tactical effort into tactical and operational success. A change of the core competencies of war is synonymous with a change in the system of causal relationships that underlies that part of the strategic pyramid, so that the same way of war that might have led to operational success before the RMA now fails. RMAs change the relative importance of the dimensions of strategy and make it possible to compensate for weaknesses in one with strengths in others in new ways, but they cannot change the fact that war is a multi-dimensional phenomenon.[128]

Warfare itself is a complex system: Methods of war that 'work' are only patterns of past experience, and expecting them to continue into the future invites unpleasant surprise. Their complex nature makes it difficult, if not impossible to predict the way in which ways of war will evolve: Military change of a significant kind—whether it is an RMA or not—can be caused by changing cultural norms, the adoption of new political goals or of a new strategy, or the emergence of a new technology.[129] Nor do RMAs themselves originate from changes in one dimension of strategy alone: They usually combine technological developments, doctrinal innovation and organizational adaptation.[130] Sometimes, new technologies were available to military forces for decades before they were used in new ways to revolutionary effect—such was, for example, the case with the English longbow.[131] In other instances, for example the development of amphibious landings by the US Marine Corps and the use of tanks for Blitzkrieg operations by the German army, doctrines and organizations were adapted before the necessary technology was fully developed.[132]

Non-linearities in the ways of war can be caused by a number of changes along a scale that, at one end, includes minor technological or tactical changes that can nevertheless have important consequences for the outcome of tactical engagements. At the other end stand not RMAs but military revolutions, which are characterized by changes in the

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[127] Antulio J. Echevarria, 'War, Politics and RMA—The Legacy of Clausewitz,' *Joint Force Quarterly* (Winter 1995-96), pp. 76-80. Clausewitz has been severely attacked for his insistence on the importance of the political goal in war, for example in John Keegan, *A History of Warfare* (New York: Vintage Books, 1993). None of his critics can convince on this point, however, since they define politics far too narrowly in the context of European nation states of the eighteenth and nineteenth century.

[128] And that some minimum strength along all dimensions is necessary for success in it. Colin S. Gray, 'RMAs and the Dimensions of Strategy,' *Joint Force Quarterly* (Autumn/Winter 1997-98), pp. 50-54. Antulio J. Echevarria, 'Dynamic Inter-Dimensionality: A Revolution in Military Affairs,' *Joint Force Quarterly* (Spring 1997), pp. 29-36 even argues that the central feature of the current RMA does not lie in the technological sphere, but in the fact that the dimensions of strategy become more closely intertwined through the growing interdependence and quick reaction of the global economy and media to political events, and the possibility to use weapons to more discriminating effect.

[129] Theo Farrell and Terry Terriff, 'The Sources of Military Change', in *The Sources of Military Change*, eds. Theo Farrell and Terry Terriff (Boulder, CO: Lynne Rienner, 2002), pp. 3-20.

[130] FitzSimonds and van Tol, 'Revolutions in Military Affairs,' pp. 25-26.

[131] Clifford J. Rodgers, '"As if a new sun had arisen": England's fourteenth-century RMA,' in *The Dynamics of Military Revolution, 1300-2050*, eds. Williamson Murray and MacGregor Knox (Cambridge: Cambridge University Press, 2001), pp. 15-34.

[132] For case studies from this very interesting time, see Williamson Murray and Allan R. Millet, eds, *Military Innovation in the Interwar Period* (Cambridge: Cambridge University Press, 1996).

political, social, and cultural arenas—such as, for example, the industrial revolution. They are "largely uncontrollable, unpredictable, and above all unforeseeable", and

> recast the nature of society and the state as well as of military organizations. By so doing they altered the capacity of states to project military power and allowed the military to kill people and break things ever more effectively.[133]

Williamson Murray draws the analogy of military revolutions as earthquakes, and compares RMAs to pre- and aftershocks:

> During the process of developing RMAs military organizations must come to grips with fundamental changes in the political, social and military landscape [caused by military revolutions]; they innovate and adapt to—in some cases foreshadow—revolutionary changes. RMAs involve putting together the complex pieces of tactical, societal, political, organizational, or even technological changes in new conceptual approaches to war.[134]

Both RMAs and military revolutions thus make it necessary to develop new concepts and models to evaluate the usefulness of military forces for some, if not all tasks that they might be called upon to do. This loss of knowledge, and the need to develop new heuristics and ideas of how to use forces effectively, affects those who 'develop' the RMA, those who suffer its effect for the first time, and those who stand at the sidelines and watch the spectacle unfold: The only difference between the three is that the first have a (temporary) knowledge advantage over the others.[135] Cognitive limitations thus contribute to the uncertainty that affects the use of technology and tactics to achieve operational effect, and they are a second major source of uncertainty, besides complexity, affecting the causal relationships that underlie the strategic pyramid. Thomas G. Mahnken writes that

> expectations about the character and conduct of war drawn from combat experience and organizational culture, combined with incomplete and often inaccurate information, often prevent intelligence organizations from recognizing the emergence of new ways of war. Intelligence agencies are more inclined to monitor the development of established weapons than to search for new military systems. It is also easier for them to detect technology and doctrine that have been demonstrated in war than weapons and concepts that have not seen combat. As a result, intelligence agencies readily identify incremental changes to weapons whose value has been demonstrated in war. They experience greater difficulty identifying new or unique systems. Finally, intelligence organizations often pay greater attention to innovations in areas that their own services are exploring than to those that they have not examined, are not interested in, or have rejected.[136]

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[133] Williamson Murray, 'Thinking About Revolutions in Military Affairs,' *Joint Force Quarterly* (Summer 1997), p. 71.

[134] Ibid., p. 73.

[135] See the case studies in Murray and Millet, eds., *Military Innovation in the Interwar Period.*

[136] Thomas G. Mahnken, *Uncovering Ways of War: U.S. Intelligence and Foreign Military Innovation, 1918-1941* (Ithaca: Cornell University Press), 2002), p. 6.

Unlike military revolutions, which affect military organizations through the change that they bring to society as a whole, the driving impetus behind RMAs is not external to the military and strategic community of a nation. RMAs do not happen, they are made: "The conduct of an RMA, pre-planned or not, is an exercise in strategy; it is strategic behaviour."[137] The enemy thus enters as a third major source of uncertainty. Both adversaries do not only benefit from defying the other's expectations *within* a set of causal relationships—pushing tanks through the Ardennes, for example. An even greater benefit lies in defying the other's expectations *about* the causal relationships in the strategic pyramid—such as the belief that tanks are most effectively employed in support of infantry.

In summary, this chapter has discussed strategy as the system of cause-effect relationships that underlies the strategic pyramid. Achieving purposeful strategic effect requires a theory of victory to make use of these cause-effect relationships. Coming out of a creative process of strategy formation, that theory is at first a mere idea, which needs to be codified into categories and criteria that can be applied by the defence bureaucracy, and thus guide planning. However, strategy is inevitably affected by aleatory uncertainty, complexity, the limitations of human nature, and the enemy. Therefore, no theory of victory can escape uncertainties regarding the international system and intelligence information, as well as friction, strategic interaction and RMAs.

[137] Colin S. Gray, *Strategy for Chaos* (London: Frank Cass, 2002), p. 120. This is a central point of Gray's book on RMAs.

CHAPTER 3:

STRATEGIC RISK

Uncertainty and threats are both constituent elements of risk. Since the uncertainty inherent in dealing with an adversary cannot be eliminated, strategic risk is inherent to the problem of strategy making and execution. This chapter will examine the concept of strategic risk more closely, and develop a framework on which the theory in the following two chapters will build.

3.1 Perspectives on Risk

Risk is an inherent part of human existence where hazards, vulnerabilities and exposure to danger create the risk of bodily injury and physical damage.[138] But most definitions of risk are oriented towards certain risk management methods and thus limited in their general applicability—e.g. "we understand *risks* as uncertainties that may result in financial loss and affect the ability to make repayments."[139] The word 'risk' itself comes from the Italian 'risicare,' meaning 'to dare,' which betrays the close historic relationship between the concept of risk and gambling.[140] Risk always refers to a difference between reality and possibility: Although it is clear ex post what has happened, we can identify several possible outcomes ex ante. In general,

> Risk arises out of **uncertainty**. It is the exposure to the possibility of such things as economic or financial loss or gain, physical damage, injury or delay, as a consequence of pursuing a particular course of action. The concept of risk has two elements, the **likelihood** of something happening and the **consequences** if it happens.[141]

The consequences of an event are the result of a threat, and a corresponding vulnerability of valued material or immaterial goods. *Threat*, *vulnerability* and *uncertainty* are thus the defining elements of risk. In many areas, the former two components are combined into a measure of damage or loss, but risk management strategies can aim at reducing any of the three elements. Uncertainty, for example, surrounds future prices, but it is only a risk if an economic agent holds assets that are affected by these changes.

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[138] David Alexander, *Principles of emergency planning and management* (Oxford: Oxford University Press, 2002), p. 55.

[139] Alexander Melnikov, *Risk Analysis in Finance and Insurance* (Boca Raton, FL: Chapman & Hall/CRC, 2004), Preface. Indeed, there is general lack of common understanding of the term: Of 100 students at the UK's Advanced Command and Staff Course, no two gave the same definition of the term. Knighton, 'The Psychology of Risk and its Role in Military Decision-Making,' p. 310

[140] Peter L. Bernstein, *Against the Gods: The Remarkable Story of Risk* (New York: John Wiley & Sons, 1996), p. 8.

[141] Emphasis in original. Management Advisory Board, *Guidelines for managing risk in the Australian Public Service* (Canberra: Australian Government Publication Service, 1995), p. 3.

Not all uncertain threats are manageable: Unless there is a belief of a scientific, anecdotal or religious nature that the future can be influenced, the notion of risk management is meaningless, and risk becomes synonymous with fate.[142] In order to manage risk, it has to be possible to make a positive outcome more likely than would otherwise have been the case[143]—which seems, for example, impossible in the case of a (cosmologically) close gamma-ray outburst that could well lead to the end of multi-cell life on earth. The choice of a course of action to influence the future, which can also be to do nothing and accept the risk, and the risk that is to be managed are thus two sides of the same coin, and do not exist independent of each other.

3.1.1 Definitions, Sources of Surprise and Institutional Risk

Uncertain consequences can be mathematically described by random variables.[144] Historically, the concept of risk has therefore been closely related to the mathematical concept of probability. In 1921, Frank Knight criticized this association in his famous book *Risk, Uncertainty and Profit* and wrote that:

> Uncertainty must be taken in a sense radically distinct from the familiar notion of Risk [Probability], from which it has never been properly separated. ... It will appear that a *measurable* uncertainty, or 'risk' proper, ... is so far different from an *unmeasurable* one that it is not in effect an uncertainty at all.[145]

Following Knight, the term (objective) risk has often been reserved for those situations in which the probabilities of different outcomes are known.[146] Various other names—subjective risk, ambiguity, uncertainty, or ignorance, for example—have been given to those cases in which there are only subjective estimates, ordinal rankings, or no information at all on probabilities.[147] Authors often differ in the exact use of these

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[142] Advisory Council on Global Change, *World in Transition: Strategies for Managing Global Environmental Risks*, pp. 56-64.

[143] This fact should not, however, justify rigid plans and decisions based on a false assumption of pre-determinism and predictability, however much such behaviour might coincide with human nature. Remaining purposefully flexible in one's ability to react to uncertain changes, or to commit to a course of action in spite of uncertainty and accept risks are also ways of influencing the future. See Martin L. Gimpl and Stephen R. Dakin, 'Management and Magic,' *California Management Review*, vol. 27, no. 1 (Fall 1984), pp. 125-136.

[144] The very general introduction given here can be found in any introductory textbook on statistics. The author regularly consulted Ludwig Fahrmeir, Rita Künstler, Iris Pigeot, and Gerhard Tutz, *Statistik: Der Weg zur Datenanalyse* (Berlin: Springer, 1999).

[145] Emphasis in original. Frank H. Knight, *Risk, Uncertainty & Profit* (New York: Century Press, 1964, originally published in 1921), p. 205, quoted in Peter L. Bernstein, *Against the Gods: The Remarkable Story of Risk*, p. 219.

[146] For a modern discussion of risk and uncertainty, see Marjolein B. A. Van Asselt and Ellen Vos, 'The Precautionary Principle and the Uncertainty Paradox,' *Journal of Risk Research,* vol. 9, no. 4 (June 2006), pp. 313-318.

[147] For a good overview on different typologies of uncertainty, see Stephen H. Schneider, B.L. Turner and Holly Morehouse Garriga, 'Imaginable Surprise in Global Change Science,' *Journal of Risk Research*, vol. 1, no. 2 (1998), pp. 167-171.

terms, and often only define extreme cases. The following terms will thus be used herein:[148]

- *Objective risk** refers to an ideal concept, whose materialization can only be ascertained ex post, after the expiry of a source of risk. Objective risk can, for example, be defined by the relative frequency of an event over the whole time in which it can occur at all. In practice, 'risk' usually refers to the band of probability and consequence into which the objective risk is known, or expected, to fall.
- *Ignorance* means the complete absence of knowledge of both the possible consequences and their probability of occurrence.
- *Indeterminacy* refers to a situation in which possible outcomes are largely known, but no reliable statement can be made regarding probabilities (or vice versa).[149]
- *Certainty of Assessment** describes the reliability of the determination of probability and outcomes. If the probability function (defined over the spectrum of outcomes) is known, the certainty of assessment is high. If it is only vaguely known and subject to large error corridors, the certainty of assessment is low.[150]
- *Statistical Uncertainty** describes the situation in which the certainty of assessment can be quantified by a statistical technique, for example a confidence interval.
- *Incertitude** describes the general fact that all risk assessments are uncertain, and cannot be used to make a deterministic forecast of events.

When one is confronted with uncertainty, surprise is never far away. Unfortunately, 'surprise' is a very general term that can refer to several types of a mismatch between expectation and reality. Faber, Manstetten and Proops distinguish three ways in which it is possible to be surprised: First, when all outcomes and (subjective) probabilities are known, the outcome can still be different from the expectations—such as a person betting at a race course cannot, for example, be certain to see his expectations fulfilled, even if he correctly anticipates each horse's probability of winning. This kind of surprise is equivalent to *risk* in the strict, mathematical sense. Second, some outcomes can be known, but have no subjective probability assigned to them. The person at the race-course may, for example, not have listened to the weather report, and thus—knowingly—faces the possibility of a cancellation of the race due to inclement weather, without having any information as to the likelihood of this event. In the terminology adopted here, this is a case of surprise due to *indeterminacy*. Third, in a situation of *ignorance*, an event surprises since the outcome itself has never been contemplated—the racegoer could, for example, find the course torn down and replaced by a shopping mall.

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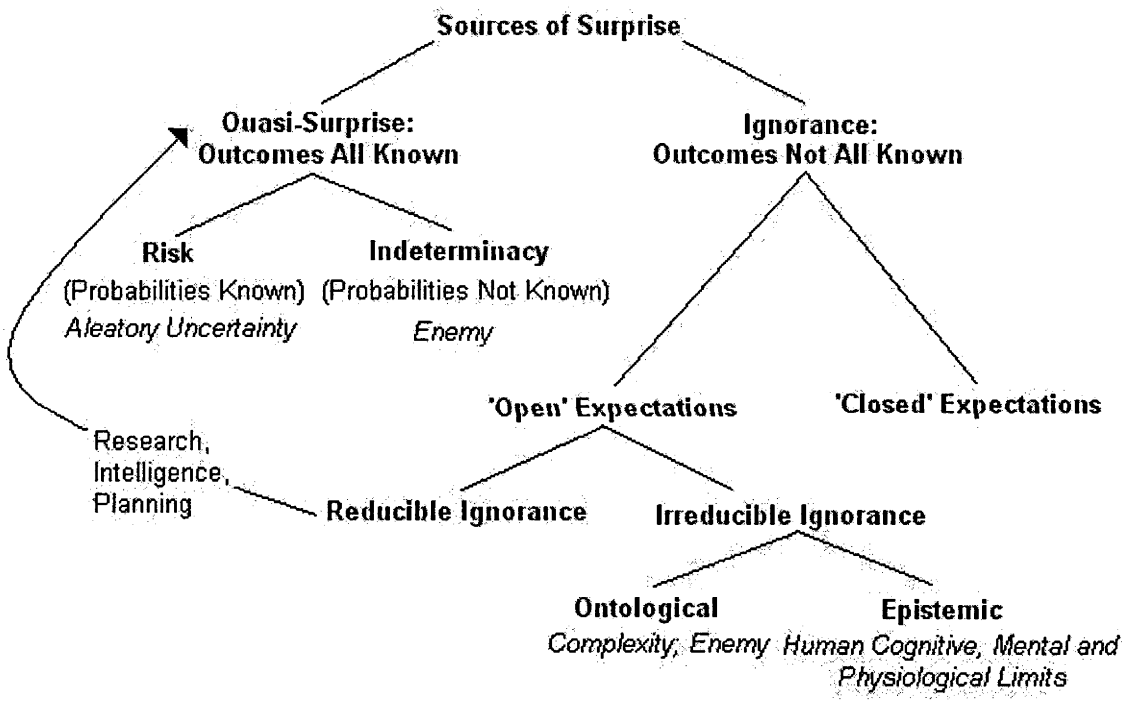
[148] Advisory Council on Global Change, *World in Transition: Strategies for Managing Global Environmental Risks*, pp. 37-38.

[149] In the area of engineering, it is for example possible that a failure probability for a specific part is known, but the consequences of a failure are uncertain due to the complexity of a system.

[150] For a discussion of this problem, see Matthew Herbert, 'The Intelligence Analyst as Epistemologist,' *International Journal of Intelligence and Counterintelligence*, vol. 19, no. 4 (October 2006), esp. pp. 670-671.

Ignorance can be separated into situations in which expectations are 'open', when the individual or society is conscious of its state of ignorance, and into those where expectations are 'closed', in which unawareness, false knowledge or judgments, or a social taboo prevent recognition of that fact. When expectations are open, *ignorance* is partly reducible, through learning in the case of individuals or research in the case of a community, and partly irreducible due to ontological or epistemic limits to knowledge.[151] The five sources of uncertainty in strategy discussed in Chapter 2 can quite easily be located within this framework (see Figure 5): Aleatory uncertainty or stochasticity is equivalent to *risk*. The enemy makes it impossible to assign unambiguous probabilities to known outcomes, and his desire to surprise, together with complexity, is an ontological impediment to reduce *ignorance* about all possible outcomes. Human cognitive, mental and physiological limitations lead to *ignorance* of the epistemic kind.

FIGURE 5: TYPOLOGY OF SURPRISE



Adapted from: Stephen H. Schneider, B.L. Turner and Holly Morehouse Garriga, 'Imaginable Surprise in Global Change Science,' *Journal of Risk Research*, vol. 1, no. 2 (1998), p. 46; Malte Faber, Reiner Manstetten and John L.R. Proops, 'Humankind and the Environment: An Anatomy of Surprise and Ignorance,' *Environmental Values*, vol. 1, no. 3 (Autumn 1992), p. 235.

In all three main categories of the above framework (*risk*, *indeterminacy* and *ignorance*), knowledge about the future is limited in one way or another. Risk management methods will be discussed in the following chapter, but it is important to point out here already that it is, of course, critical to correctly locate a problem in the above framework in order to successfully manage it. Mistakes in assigning probabilities to known outcomes and, in particular, closed expectations are of concern here. Hellström and Jacob highlight "the potentially adverse consequences *and the cultural and value-laden significance* of too large amounts of *trust* being placed in [the ability to

[151] Malte Faber, Reiner Manstetten and John L.R. Proops, 'Humankind and the Environment: An Anatomy of Surprise and Ignorance,' *Environmental Values*, vol. 1, no. 3 (Autumn 1992), pp. 221-232.

deal with limited knowledge]," and refer to this possibility "as *reflexive* risk, since it is our limited ability to reflect on the limits of our knowledge that is a threat, not the limit to knowledge itself." They go on to explain that

> Reflexive risk is in a strong sense conditioned by the capacity of institutions to respond to risks and threats. This conditioning dimension of reflexive risk may be labelled *institutional risk.* Institutional risk evolves out a situation [sic!] where the risk assessing and managing body does not possess, on account of uncertainties, SOPs [Standard Operating Procedures] and secondary power and institutional structure, the political/economic resources, coordinating capacity or simply the inclination to assess and mitigate risk successfully.[152]

Institutional risk and reflexive risk are thus closely interrelated: The *ignorance*, *indeterminacy*, or human fallibility that cause reflexive risk reduce the scope for unambiguous support of action to address a risk, and therefore raise institutional risk. A lack of institutional incentives to deal with risks can also feed reflexive risk by reducing material and political support for research to reduce uncertainty.[153]

3.1.2 Dimensions of Risk, Assessment and Evaluation

Risk is multidimensional: Consequence and likelihood, the elements of the 'classic', mathematical concept of risk, are only two among many dimensions of uncertain hazards. At a minimum, the certainties of assessment regarding both have to be considered, as they can vary anywhere from complete *ignorance* to a negligible *statistical uncertainty*. Other dimensions of risk relate to spatial, temporal and social aspects. Damage (and the associated risk) can be ubiquitous or local in nature, and it can show itself immediately or with a considerable delay. It can be persistent, reversible or compensatable. Risks can be borne equally by an overall population or be concentrated in geographically, socially, politically or otherwise defined sub-sets. Some risks can also have a potential for social mobilization that is disproportionate to the physical damage involved.

The multi-dimensionality of risk not only influences the appropriate risk treatment that should be adopted, but also has important consequences for the structure of the overall risk management process.[154] Usually, risk management processes are structured in a sequential fashion, beginning with the establishment of the context and followed by risk identification, risk assessment*, risk evaluation,* risk treatment* and monitoring and review.[155] From a methodological point of view, risk assessment and risk evaluation are the core of the risk management process and directly relate to the multidimensionality of risk.

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[152] Emphasis in original. Hellstöm and Jacob, *Policy Uncertainty and Risk: Conceptual Developments and Approaches*, p. 47

[153] Ibid., p. 48.

[154] For a comparison of the Australian Standard's risk management framework with major ones from Canada and the United States, see J.H. Shortreed, L. Craig and S. McColl, *Benchmark Framework for Risk Management* (Waterloo, ON: Institute for Risk Research, University of Waterloo, 2000).

[155] Council of Standards Australia and Council of Standards New Zealand, *Risk Management*, AS/NZ 4360:2004 (Sydney: Standards Australia, 2004), p. 13.

In the risk assessment stage, quantitative and qualitative information[156] about the risk is generated, using historical data or expert estimations. The use of fault- and event-trees in probabilistic risk assessment has, for example, become a standard tool for risk assessment in the nuclear and other high-technology industries.[157] Risk assessment aims at generating, summarizing and presenting information. At this stage, risks thus have to be comprehensively described along all their dimensions.

In the risk evaluation stage, risks are then compared to criteria that reflect the decisionmakers' preferences, in order to establish priorities and make judgments as to the acceptability of risks and costs. There are three major approaches to risk evaluation: professional judgment, 'bootstrapping'—comparing new risks with existing ones—and formal analysis.[158] None of these approaches is without problem as the first raises questions about legitimacy and accountability, the second presumes the conscious acceptance of risks, and the third requires simplification and combination of the various dimensions of risk into a mathematical formula.

Risk evaluation thus reduces the information provided by the risk assessment about a multitude of dimensions of the risk into a one-dimensional order of priority. While risk assessment should by its nature be objective, risk evaluation is inherently subjective. It is however an indispensable part of risk management since individual or collective preferences are ultimately the basis of any choice. Indeed, risk itself is a concept devoid of meaning if potential harm does not threaten a valued good, which by definition involves the decisionmaker's preferences and judgement.

3.1.3 Typologies of Risk

At a broad level of abstraction, two complementary approaches to a general typology of risks can be distinguished.[159] The first relates to the risk evaluation stage and reflects the fact that most humans are risk averse. Some risks will therefore be deemed acceptable or *normal*, if they have a small catastrophic potential and the certainty of assessment regarding the probability and damage tends to be high. The damage also tends to be localized and reversible or at least compensatable. Other risks are unacceptable or *prohibitive,* if the damage potential and probability are high, the certainty of assessment is low, damage tends to be ubiquitous and irreversible, and there is a high potential for social mobilization. When only some of these conditions are met, risks can be *transitional* and call for special regulatory attention (Typologies of this kind are often used in the approval process of risk-prone activities). The exact boundaries between all three areas are subjective, as is the classification of risks that

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[156] See, for example, the short discussion in John Shortreed, John Hicks, and Lorraine Craig, *Basic Frameworks for Risk Management, Final Report* (Waterloo, ON: Institute for Risk Research, University of Waterloo, 2003), pp. 31-37.

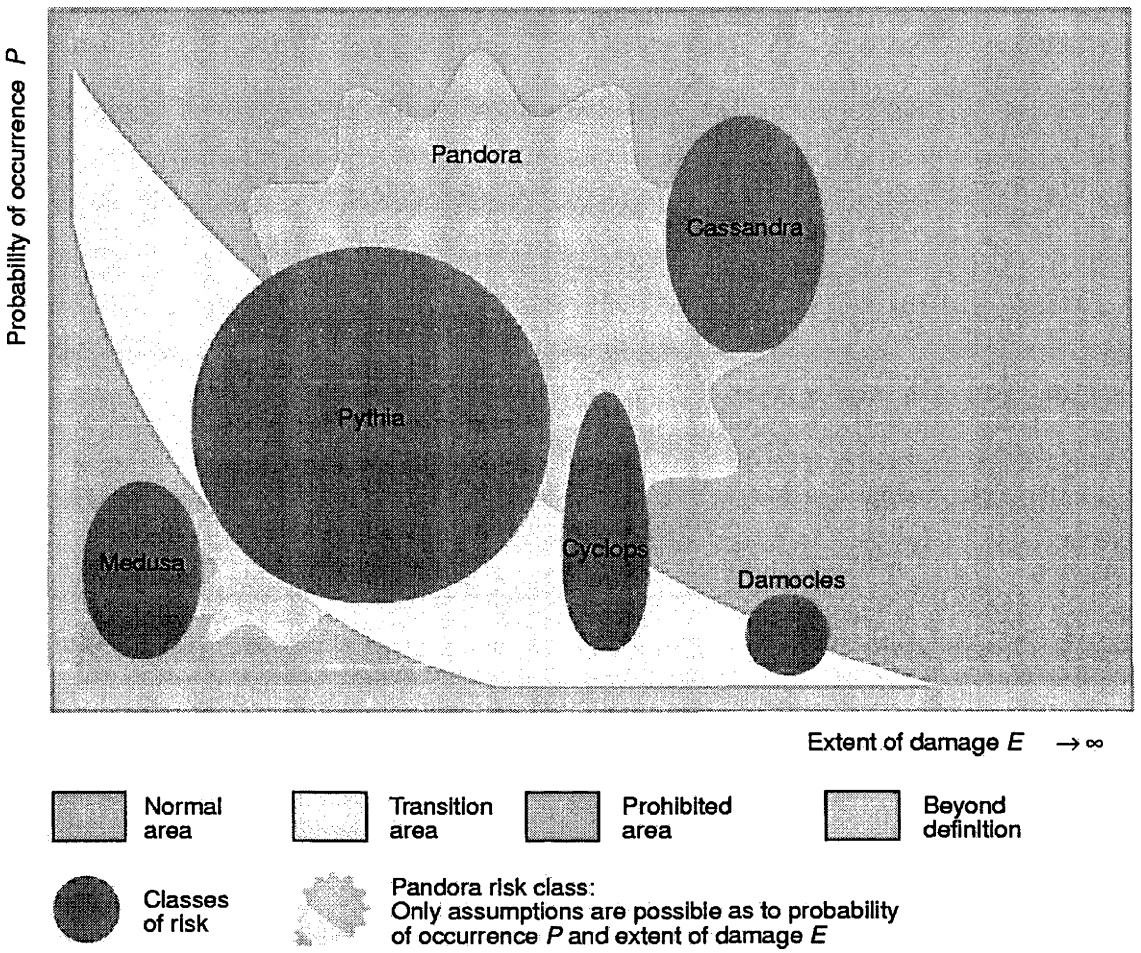
[157] NASA Scientific and Technical Information Office, *Probabilitistic Risk Assessment: A Bibliography*, NASA/SP-2000-6112 (Hanover, MD: National Aeronautics and Space Administration, 2000).

[158] Baruch Fischhoff, Sarah Lichtenstein, Paul Slovic, Stephen L. Derby, and Ralph L. Keeny, *Acceptable Risk* (Cambridge: Cambridge University Press, 1981).

[159] Since typologies can to a large degree be defined to suit the topic of interest, a large variety of types of risk can be distinguished. The absence of a generally accepted and applicable typology of risks has indeed been identified as a major shortcoming that is impeding the development of best practices in risk management across a wide spectrum of social, technological and natural hazards. International Risk Governance Council, *Fact Sheet: Taxonomy of Risks and Risk Governance Approaches* (Geneva: International Risk Governance Council, June 2004).

have such a small extent of damage or such a low probability that they are neglected as *de minimis*.[160] While the typology is thus not a scientific-theoretical one, it is nevertheless essential for risk management in practice and can help to standardize procedures for the management of risks of various kinds. Similar typologies are thus used in, for example, Great Britain, Denmark, the Netherlands and Switzerland, for the regulation of industrial and technological risks.[161]

FIGURE 6: 'MYTHOLOGICAL' RISK CLASSES



Source: German Advisory Council on Global Change, *World in Transition: Strategies for Managing Global Environmental Risks* (Berlin: Springer, 2000), p. 9.

The second approach relates to the risk assessment stage and orders risks into groups according to the dimensions that distinguish them. The German Advisory Council on Global Change has defined several classes of risk in this way, which is complementary to the approach outlined above and applicable to a wide range of areas.[162] The next chapter will discuss how different risk management methods are appropriate for different classes, whose location in a space of normal, transitional and prohibitive risk is

[160] A term borrowed from the language of jurisprudence.

[161] Advisory Council on Global Change, *World in Transition: Strategies for Managing Global Environmental Risks*, pp. 42-45

[162] Ibid., pp. 56-64.

shown in Figure 6. The size of each risk class indicates the area in which the 'true', *objective risk* is known to fall:

- The *Damocles* class, named after the Greek hero who had to dine with his king under a sword suspended on a strong but very thin thread, includes those risks that have an extremely high level of damage, but low probability. Both of these dimensions are known with a high certainty of assessment. Examples are large meteorite strikes on earth, or global nuclear war.
- The *Cyclops* class includes those risks whose associated damage is large and known with a relatively high certainty of assessment, but whose probability is uncertain to the point of *indeterminacy*. In Greek mythology, Cyclopes were giants that could only see one side of things since they only have one eye. Examples are volcanic eruptions, or a North Korean invasion of the South.
- *Pythia* was a blind seeress at the oracle in Delphi, who made predictions that were highly ambiguous relating to the probability and extent of damage that was impending. Although there is reason to believe catastrophic damage is possible, risks in this class are therefore characterized by a very low certainty of assessment regarding both primary dimensions of risk. Examples are many issues related to climate change, or the use of WMD in terrorist attacks.
- *Pandora*'s box contained evils that, once unleashed, plagued the earth ubiquitously, irreversibly and persistently. The extent of damage and its probability are usually not known with any certainty. Examples are the release of possibly harmful persistent organic pollutants into the food chain, or the growing dependency of Western forces on networked data-exchanges.[163]
- *Cassandra* warned the Trojans of a Greek victory but was not taken seriously. Risks in this class have a high probability and extent of damage, which are known with moderate certainties of assessment. But they only materialize with such a large delay effect that they are not acknowledged or hope is placed in new, not yet discovered remedies. Examples include the effect of smoking, or the need for a defence-build up in peacetime in the absence of a present and unequivocal threat.
- Some risks, finally, are neither very likely nor associated with a large damage, but nevertheless cause people to be petrified by danger as if they had seen the Gorgon sister *Medusa.* Examples are various scares surrounding electromagnetic radiation, or—arguably—the threat of terrorism.

3.2 Existing Concepts of Strategic Risk

This section discusses four concepts of strategic risk as they can be found in the academic and practical literature on strategy and defence planning. In general, a coherent and consistent use of the term is lacking.[164] Strategic and operational risks are also often not conceptually separated.

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[163] Richard J. Harknett and the JCISS Study Group, 'The Risks of a Networked Military,' *Orbis* 44, no. 1 (Winter 2000), pp. 127-143.

[164] Even by the same author—see, for example, M. Page, 'Risk in Defence,' in *Risk and Decisions*, eds. W.T. Singleton and Jan Hovden (Chichester: John Wiley & Sons, 1987), pp. 191-205.

3.2.1 Risk as a Mismatch Between Ends and Means

Walter Lippmann famously wrote that the role of foreign policy "consists in bringing into balance, with a comfortable surplus of power in reserve, the nation's commitments and the nation's power,"[165] and similarly the purpose of strategy is often seen as to reconcile ends with means. In this context, John Collins writes that "Discrepancies between ends, which we have identified as interests and objectives, and means—available resources—create risks, which can rarely be quantified."[166] The view of risk as a mismatch between ends and means is intuitive and well established in the literature on the subject.[167] Ends, means and ways are recurring themes in strategic theory, and methods to deal with a mismatch between them can be interpreted as risk management under this concept of risk.[168] Liotta and Lloyd, for example, write that

> Both qualitative and quantitative assessments of objectives, strategy, forces, and threats help identify deficiencies in our strategy or force posture. The net result of such deficiencies is that risks must be assumed to arise from them until improvements can be made. ... In the broadest of terms, risk is the *ability or willingness to expose oneself to damage during a period of change* [sic!].[169]

But the main deficiency of this concept is that, although it implicitly assumes that the ends of strategy are something valuable, it does not identify threats to these ends, nor uncertainties relating to these threats or one's ability to respond to them. It does not consider the intrinsic uncertainties of strategy, which make any calculation of what are 'sufficient' means tenuous at best. Seen as a mismatch between ends and means, risk thus becomes synonymous with bad strategy, or with a necessary evil that could, in theory, be radically reduced or eliminated by an adjustment of ends, means or ways.[170]

Risk as a mismatch between ends and means, or as a deficiency in the force structure, is a concept that can also be found in an operational level analysis. In preparation for the 2001 *QDR*, a working group at the National Defense University, for example, developed a model to assess and evaluate strategic and operational risk. Their framework is centred on the quantification of force performances in major theatre wars in relation to a number of parameters. While the group defines force performance risk

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[165] Walter Lippmann, *U.S. Foreign Policy: Shield of the Republic* (Boston: Little Brown, 1943), p. 9.

[166] John M. Collins, *Grand Strategy: Principles and Practices* (Annapolis: Naval Institute Press, 1973), p. 5.

[167] For a good discussion of this concept of risk in the strategic literature, see James F. Holcomb, 'Managing Strategic Risk', in *U.S. Army War College Guide to National Security Policy and Strategy*, ed. J. Boone Bartholomees (Carlisle, PA: Strategic Studies Institute of the U.S. Army War College, 2004), pp. 119-132. See also the discussions of U.S. Force Planning Frameworks in: Richmond M. Lloyd, 'Strategy and Force Planning Framework,' in *Strategy and Force Planning*, ed. The Strategy and Force Planning Faculty, National Security Decision Making Department, Naval War College (Newport, RI: Naval War College Press, 2000), pp. 1-17, as well as other essays in that book; P.H. Liotta and Richmond M. Lloyd, 'From Here to There,' *Naval War College Review*, vol. 58, no. 2 (Spring 2005), pp. 121-137; John M. Collins, *U.S. Defense Planning: A Critique* (Boulder, CO: Westview Press, 1982).

[168] See for example Beaufre, *An Introduction to Strategy*, pp. 26-29.

[169] Emphasis in original. Liotta and Lloyd, 'From Here to There,' pp. 133-134. See also Collins, *U.S. Defense Planning: A Critique*, pp. 7-8.

[170] For a discussion of strategic risk in the means-ends-ways framework that does not make this mistake, see Yarger, *Strategic Theory for the 21st Century: A Little Book on Big Strategy*, esp. pp. 63-64, 70-71.

as "the probability of a given force structure's failure to meet established objectives when executed against a given scenario,"[171] their methodology neither reflects this definition, nor identifies the sources or extent of uncertainty inherent in either the outcome itself, or in the assessment thereof. Instead, risk is defined on the basis of the simulated outcome of the war—casualties or delays above certain thresholds are, for example, defined as low, moderate, high or unacceptable risk. Again, risk is seen as de-facto synonymous with cost due to a mismatch between ends and means, and the implication is that providing additional forces or capabilities would be sufficient to reduce risk.[172]

3.2.2 'Mathematical' Views of Risk

After a US Army representative referred to 'a calculated risk' in a Congressional hearing, J.C. Wylie wrote a one-page article in 1953 in which he develops a mathematical model of strategic risk, consisting of payoffs in the case of success, failure and non-attempt, and the probability of success. He finishes the discussion of the framework with the remark that

> To insure success in its use, there is only one condition that must be met: the factors involved must never be expressed in arithmetic quantities. That would blunt the fine edge of judgment and obscure the true balance of intangibles.[173]

Like other complex risks, strategic risks are highly multi-dimensional and cannot easily be reduced to two dimensions. A single measure of probability cannot capture the various types of uncertainty that affect the subjective likelihood associated with a strategic risk.

On the one hand, it is difficult to apply the mathematical concept of probability to a singular event, since there is neither a set of identical situations (as in the case of lab mice) that can be used to narrow down the *objective risk*, nor does the same risk exist over a period of time that would make it possible to calculate a frequency for it (as in the case of earthquakes). This is especially so since free choice by human beings is always involved in the realization of strategic risk, which introduces an element of *indeterminacy*. In addition, if there was such a thing as an *objective risk* in defence, it would result from the interaction of the enemy's intentions with one's own preparations. Michael I. Handel reminds of the paradoxical logic of strategy: "*The greater the risk, the less likely it seems to be, and the less risky it actually becomes. Thus, the greater the risk, the smaller it becomes.*"[174]

On the other hand, events have a geopolitical, social, historical, and economic background, they are influenced by humans with at least partly known values and

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[171] Kenneth F. McKenzie, 'Assessing Risk: Enabling Sound Defense Decisions,' in *QDR 2001: Strategy-driven Choices for America's Security,* ed. Michèle A. Flournoy (Washington D.C.: National Defense University, 2001), p. 198.

[172] Ibid., pp. 193-216.

[173] J.C. Wylie, 'The Calculation of Risk,' *United States Naval Institute Proceedings* (July 1953), p. 725, quoted in Holcomb, 'Managing Strategic Risk', pp. 123-124. See also the introduction to Wylie, *Military Strategy,* pp. xxvii-xxviii.

[174] Emphasis in original. Michael I. Handel, 'Intelligence and the Problem of Strategic Surprise,' in *Paradoxes of Strategic Intelligence*, eds. Betts and Mahnken, p. 17.

interests, and they are also subject to the laws of physics. It is therefore intuitively correct that some events are more likely than others,[175] and that this fact might be captured in a quantitative measure. Abbott E. Smith comments on the problem of how to convey likelihood in the context of assessing the quality of National Intelligence Estimates (NIE):

> Now suppose that the NIE says that something will "probably" occur, and it does not. The estimate was strictly not 100 percent wrong, for it only gave the event about a 60 percent change of occurring; perhaps it should be scored as 60 percent wrong. But pause a moment, and suppose that somehow we come to realize that there never had been any appreciable chance of the event occurring; then the estimate was really about 100 percent wrong. Or suppose that we come to know that there was indeed a 60 percent change of its occurring but that something happened—perhaps even an act of US policy taken as a consequence of the NIE—which prevented it from occurring; then the estimate was 100 percent right—or was it?[176]

If the notion of an *objective risk* for a singular event is accepted despite the theoretical problems associated with it, then it becomes necessary to express the certainty of assessment regarding the probability associated with that risk. In some situations, it might be possible to say that there is, for example, a fifty-fifty chance of war. In other situations, the information available will simply not allow one to confidently make that call, and that uncertainty could meaningfully be expressed by, for example, estimating a range or even a distribution over the probabilities (e.g. "We think that the chance of an attack is 50%, but it might be as likely as 80% or as unlikely as 20%).

A similar problem is associated with the estimation of consequences. There is rarely a situation in which it is possible to associate only one meaningful outcome with a strategic risk. More often, there are at least a few distinct outcomes, or a full range of outcomes imaginable. In some situations, this range of possible outcomes (e.g. from peace and full cooperation to all-out war) is so large to be meaningless.[177] Ordered along a cardinal or ordinal scale, such as the number of casualties in an operation or the quality of international relations (however defined), it is possible to think of the *objective risk* as a probability distribution over that scale. There will, however usually be some judgment as to the 'severity' of outcomes involved in ordering them along that scale, since it is, for example, very difficult to account for distributional effects in a simple measurement. Israel is faced with such a problem where a certain number of random deaths from terrorism is 'acceptable' in the sense that it does not trigger a response. But the same number of deaths due to indirect fires from the Gaza strip or Southern Lebanon is not, since that risk is borne by only a small part of the overall population.

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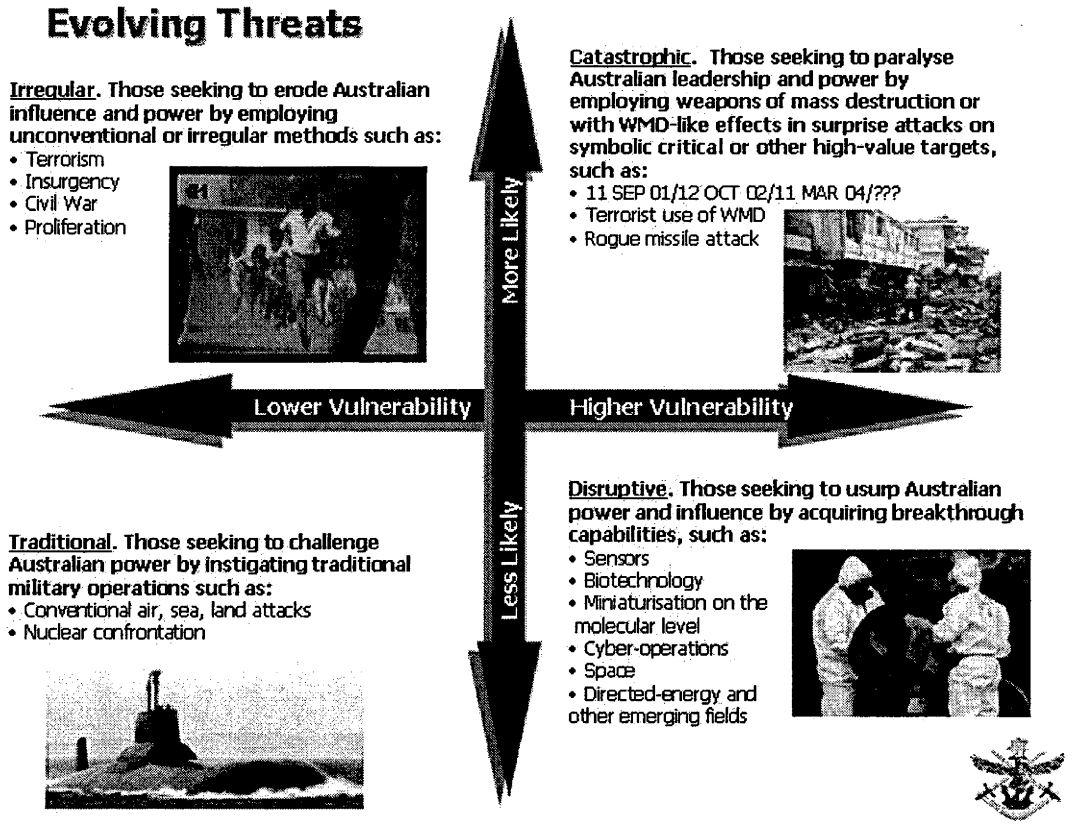
[175] See Knorr and Morgenstern, 'Political Conjecture in Military Planning,' pp. 29-30.

[176] Abbot E. Smith, 'On the Accuracy of National Intelligence Estimates,' *Studies in Intelligence*, vol. 13, no. 4 (Fall 1969), p. 28. Until now, the US intelligence community has not implemented a coherent system of describing the estimated likelihood of events, (Richards J. Heuer, 'The Limits of Intelligence Analysis,' *Orbis,* vol. 49, no. 1 (Winter 2005), esp. pp. 87-88.), nearly 40 years after Sherman Kent had first pointed out the need to do so. (Sherman Kent, 'Words of Estimative Probability,' *Studies in Intelligence,* vol. 8, no. 4 (Fall 1966), pp. 35-44.)

[177] See the discussion of uncertainties in Hugh Courtney, Jane Kirkland, and Patrick Viguerie, 'Strategy under Uncertainty,' *Harvard Business Review*, vol. 75, no. 6 (November/December 1997), pp. 66-79.

FIGURE 7: ADF CONCEPT OF EVOLVING THREATS



Source: Air Commodore Mark Lax, 'The ADF's Approach to Joint Future Warfighting,' Presentation at the *Joint Future Warfighting Conference*, Canberra, 20-21 April 2005.

In spite of these conceptual problems, probability and consequence are two parameters that are often used to describe a spectrum of conflict facing a nation with, for example, peacetime presence at one end of the scale and a probability of 100%, and strategic nuclear war at the other extreme. Since a two-dimensional graph can—at most—include three dimensions of risk, its advantage in terms of the visual presentation of information has to be weighed against the significant simplification that is necessary to construct it.[178] An example for this trade-off can be found in Figure 7, which classifies risks in four categories, orders them according to their probability and 'vulnerability', and gives an overview of the types of enemy activity subsumed under each.[179] Since it is not possible in this framework to convey the gravity of a threat as well as the vulnerability to it, the curious result is that Australia should be 'less vulnerable' to the threat of a traditional nuclear confrontation than to, for example, enemy breakthroughs in sensor technology. Another, applied example is the US Department of Homeland Security's formula for the distribution of funds for counterterrorism activities between

[178] For a good overview on this type of spectrum-of-conflict graphs, see Henry C. Barlett, G. Paul Holman, and Timothy E. Somes, 'The Spectrum of Conflict: What Can It Do for Force Planners?,' in *Strategy and Force Planning*, ed. The Strategy and Force Planning Faculty, pp. 435-447.

[179] For similar graphs, see Office of the Secretary of Defense, *The National Defense Strategy of the United States* (Washington D.C.: Department of Defense, 2005), pp. 2-3; Joint Chiefs of Staff, *The National Military Strategy of the United States of America* (Washington D.C.: Department of Defense, 2004), pp. 4-5.

different states and cities, which calculates values for probability and severity of consequences of terrorist attacks on the basis of various intelligence, population and infrastructure datasets.[180]

3.2.3 Risk and Post-Cold War Security

A third broad view of strategic or security risk can be found in writings on the post-Cold War security environment. According to the Copenhagen school, whether certain problems are considered security issues is not primarily due to their intrinsic characteristics, but because they are consciously 'securitised' in the political context.[181] Threats to security are thus not only to a large degree constructed within society, but the concept is also extended beyond the traditional realm of national security, comprising internal subversion and external aggression. Framed as 'human security', security threats can, at the limit, include any potential source of harm to an individual.[182]

In parallel with these largely academic concepts, the official discourse began to give greater emphasis to 'non-military' security issues as the growing cooperation and integration between 'post-modern' states, primarily in Europe, challenged the realist notion of state sovereignty. Traditional security concerns between the members of the 'post-modern' sphere had disappeared, but remaining threats from 'modern' states, which were still willing to use armed force in the pursuit of the national interest, were complemented by new ones from 'pre-modern' zones of chaos, in which the state had lost the monopoly on violence.[183] The 1999 NATO Strategic Concept, for example, mentions that "[t]he security of the Alliance remains subject to a wide variety of military and non-military risks which are multi-directional and often difficult to predict."[184] These include

> the appearance of complex new risks to Euro-Atlantic peace and stability, including oppression, ethnic conflict, economic distress, the collapse of political order, and the proliferation of weapons of mass destruction.[185]

Furthermore,

> Alliance security interests can be affected by other risks of a wider nature, including acts of terrorism, sabotage and organised crime, and by the disruption of the flow of vital resources. The uncontrolled movement of large numbers of people, particularly as

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[180] Todd Masse, Siobhan O'Neil, and John Rollins, 'The Department of Homeland Security's Risk Assessment Methodology: Evolution, Issues, and Options for Congress,' *Congressional Research Service Report* RL33858 (Washington D.C.: Congressional Research Service, 2007).

[181] Barry Buzan, Ole Wæver and Jaap de Wilde, *Security: A New Framework for Analysis* (London: Rienner, 1998).

[182] For human security, see for example Dan Henk, 'Human Security: Relevance and Implications,' *Parameters*, vol. 35, no. 2 (Summer 2005), pp. 91-106; Roland Paris, 'Human Security: Paradigm Shift or Hot Air?', *International Security,* vol. 26, no. 2 (Fall 2001), pp. 87-102.

[183] Robert Cooper, *The Postmodern State and the World Order* (London: Foreign Policy Centre, 2000).

[184] North Atlantic Treaty Organization, *The Alliance's Strategic Concept*, approved at the Washington Summit 23-24 April 1999, para. 20.

[185] Ibid., para. 3.

> a consequence of armed conflicts, can also pose problems for security and stability affecting the Alliance.[186]

In some regards, security policy thus seemed to fall in line with the post-modern *Risk Society*,[187] organized in response to risks.[188] In this line of thinking, the concept of risk is contrasted with the more traditional one of threat:

> Perhaps the best way to differentiate threats and risks is through their respective components. Both imply different ways of conceptualising danger. Risk emphasises the *probability* and *magnitude* of *consequences*. In international relations under the Old Security Paradigm, the conventional notion of threat was usually defined narrowly in military terms of composed of assessing an opponent's *intentions* and military *capabilities*.[189]

Yee-Kuang Heng thus contrasts "a risk management perspective of proactively averting probabilistic scenarios, leading to preventive strategies", with "a more orthodox understanding of war involving 'net assessment' and reacting to more 'real' or imminent material threats."[190] In addition, the goal of security policy and warfare throughout the 1990s allegedly became "*averting* an array of possible adverse undesirable consequences that may or may not materialise", rather than "the previous more direct linear 'instrumental' rationality, which emphasised calculating and matching means to *attain* desired goals."[191]

The view of strategic risks as synonymous with post-Cold War security issues can thus be attributed to the confluence of a number of different factors, especially the increasing prominence of humanitarian goals pursued by military force, a subjectively greater volatility of the interconnected globalised world, and academic attention to the subject from political scientists working outside the strategic studies sphere. The practical value of this view is however limited: First, the alleged dichotomy between 'traditional' threats and 'post-modern' risks is based on a caricature of security policy during the Cold War (one just has to think, for example, of the uncertainty and risk management calculus underlying Western intervention in stopping Communist expansion in the third world). Second, much of the perceived change is attributable to the political willingness of Western democracies to contemplate the use of military force for purposes other than pure self-defence, such as in humanitarian interventions, and an alleged reduction in the likelihood of interstate warfare. But third, and most importantly, a distinction between risk, based on probability and consequence, from threat, based on capability and intention, ignores the fact that the use of armed force,

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[186] Ibid., para. 24.

[187] Ulrich Beck, *Risk Society: Towards a new modernity* (London: Sage, 1992).

[188] See, for example, Christopher Coker, 'Globalisation and Insecurity in the Twenty-first Century: NATO and the Management of Risk,' *Adelphi Paper*, no. 345 (London: International Institute for Strategic Studies, 2002); Mikkel V. Rasmussen, 'Reflexive security: NATO and International Risk Society,' *Millennium*, vol. 30, no. 2 (June 2001), pp. 285-309.

[189] Yee-Kuang Heng, *War as Risk Management: Strategy and conflict in an age of globalised risks* (London: Routledge, 2006), p. 13.

[190] Ibid., p. 2. See also p. 23.

[191] Ibid., p. 49.

even if it is in reaction to a security 'risk', such as ethnic cleansing, must still coerce adversaries with specific capabilities and intentions.

3.2.4 Risk Management in the 2001 Quadrennial Defence Review

The fourth approach to risk in strategy relates to the management of the defence effort. In the United States, the 2001 *QDR* introduced a framework consisting of four risks:

- Force management—the ability to recruit, retain, train, and equip sufficient numbers of quality personnel and sustain the readiness of the force while accomplishing its many operational tasks;
- Operational—the ability to achieve military objectives in a near-term conflict or other contingency;
- Future challenges—the ability to invest in new capabilities and develop new operational concepts needed to dissuade or defeat mid- to long-term military challenges; and
- Institutional—the ability to develop management practices and controls that use resources efficiently and promote the effectiveness operation of the Defense establishment.[192]

The *QDR* goes on to say that

> This framework allows the Department to consider tradeoffs among fundamental objectives and fundamental resource constraints, and it reflects DoD's experiences over the last decade in attempting to balance strategy, force structure, and resources.[193]

Only in the subsequent Annual Report did the Department indirectly define what it understands as risk in this regard, when it wrote that

> it is essential to create a framework to manage responses to the different sources of risk—that is, the issues and factors that can undermine the ability of the organization to achieve the goals of defence policy.[194]

Unfortunately, neither the report, nor any other publication details how the framework is applied in practice. The following Annual Report of 2003 introduced the likelihood and consequences of failure, and time, as the three dimensions that are used to measure operational risk,[195] while the previous report had apparently applied the methodology outlined above to assess that risk.[196] Probability and consequences are not mentioned in connection with any of the other four risk categories, and neither are uncertainties

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[192] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (Washington D.C.: Department of Defense, 2001), pp. 57-58

[193] Ibid., pp. 58.

[194] Secretary of Defense, *Annual Report to the President and Congress* (Washington D.C.: Department of Defense, 2002), pp. 22-23.

[195] Secretary of Defense, *Annual Report to the President and Congress* (Washington D.C.: Department of Defense, 2003), p.41. The 2004 report did not change in this regard: Secretary of Defense, *Annual Report to the President and Congress* (Washington D.C.: Department of Defense, 2004).

[196] See also Secretary of Defense, *Annual Report to the President and Congress* (2002), p. 54.

relating to any of them explicitly considered. By 2006, observers hence questioned whether the framework was ever fully developed and applied.[197]

The Pentagon's risk framework was less about risks—consisting of threat, vulnerability and uncertainty—than about harmonizing conflicting demands on limited resources in general. Concepts and methods to balance these are, of course, important management tools, but the term 'risk' is used here, again, more as a synonym for a failure to attain policy goals, or a mismatch between ends and means—although, this time, within different parts of the defence organization.

3.3 Strategic Risk: Surprise, Warning and Risk Characterisation

Based on the discussion of risk and uncertainty in this chapter, and of strategy in the previous one, this section will more closely define strategic risk. An introductory section is followed by a discussion of the relationship between strategic risk and surprise. The third section develops a more detailed and coherent framework of the concept, which will provide the basis for the development of a typology of defence planning concepts in Chapter 5.

3.3.1 Vulnerability, Threats, and Uncertainty

Most of the concepts of strategic risk discussed above lacked a clear identification of vulnerability, threat and uncertainty. In the strategic context, the first is given in the form of political goals, the second in the form of enemies, and the third include (but are not limited to) those that affect the strategic pyramid. This simple framework of the three constituting elements of strategic risk is summarized in Figure 8, which also introduces a number of other uncertainties that are relevant to defence planning. It can be used to develop an outline of the components of strategic risk, and to further define the scope of the argument.

A nation's leaders' foremost interest is usually to guarantee their state's continuing existence by defending its population, territory, sovereignty, constitution, way of life and means to support it from outside attack—but like other interests, such as the prevention of genocide, the advancement of world communism, or the liberation of Jerusalem from the infidels—in the end reflects political preferences. In order to guide decisionmaking, such preferences have to be 'operationalised' in the form of policy goals.[198] This step can be called foreign policy in a wider sense, and in practice primarily reflects the policy maker's theory of international relations, as well as the particular strategic circumstances of the nation.[199]

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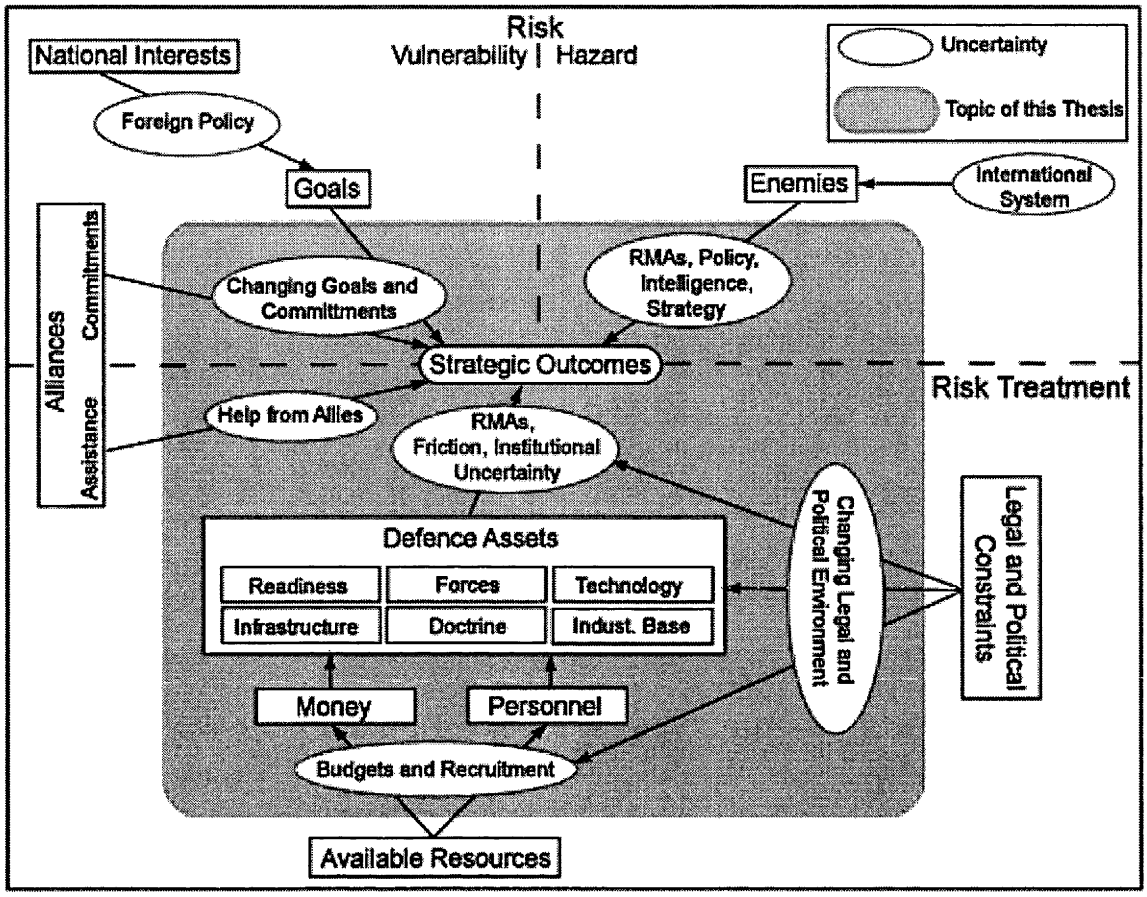
[197] Michèle A. Flournoy, 'Did the Pentagon Get the Quadrennial Defence Review Right?,' *Washington Quarterly*, vol. 29, no. 2 (Spring 2006), p. 72.

[198] See P.H. Liotta, 'Still Worth Dying For, National Interests and the Nature of Strategy,' *Naval War College Review,* col. LVI, no. 2 (Spring 2003), pp. 123-138 for more on this point. His article is an answer to James F. Miskel, 'National Interests, Grand Purposes or Catchphrases?,' *Naval War College Review,* vol. LV, no. 4 (Autumn 2002), pp. 96-104. For a study that severely suffers from a misinterpretation of interests as directly useable guides to policy, see John Lewis Gaddis, *Strategies of Containment: A Critical Appraisal of Postwar American National Security Policy* (Oxford: Oxford University Press, 1982).

[199] The prime example for the importance of these two factors in transforming interests into goals is the United States, where the fundamental direction of foreign policy has been widely discussed ever since the

FIGURE 8: TREATING STRATEGIC RISK



Foreign policy goals have to be pursued in an international system in which each state and non-state actor follows its own, potentially competing and conflicting goals. To the extent that these other actors are, or might be, willing to use force to resolve these differences, goals define vulnerabilities that are relevant to the topic of this thesis (preventing or allowing carbon dioxide emissions, for example, does not yet seem to be a goal that would lead states to threaten the use of military force). For the purpose of the argument herein, goals will be seen as given and defined by the political leadership. To do otherwise would both disregard the major role of political preferences, and necessitate a discussion of the merits of different schools of international relations theory that stand behind them: an undertaking both too large and only marginally relevant to the main topic of discussion. It is, however, necessary to consider that goals do not remain constant over time. Similarly, this thesis will regard enemies as given in

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time of the founding fathers. Examples of arguments that fall into this context are the 'utopian-realist controversy', the choice between isolationism and entering in foreign alliances, or the role of values in foreign policy. The US debate on many of these issues is alive and well to this day. See, for example, the recent exchange between Charles Krauthammer and Francis Fukuyama: Charles Krauthammer, *Democratic Realism: An American Foreign Policy for a Unipolar World* (Washington, D.C.: AEI Press, 2004); Francis Fukuyama, 'The Neoconservative Moment,' *The National Interest*, no. 76 (Summer 2004), pp. 57-68; Charles Krauthammer, 'In Defense of Democratic Realism,' *The National Interest*, no. 77 (Fall 2004), pp. 15-25; Robert Cooper, 'Liberal Imperialism,' *The National Interest*, no. 79 (Spring 2005), pp. 25-34. Examples for other recent controversies that are shaped or influenced by these two factors are those on the normative role of the United Nations Security Council in authorizing preventive and preemptive action, or on the extent to which European states should engage in expeditionary operations.

the sense that it does not consider policies outside the defence planning context that might lead to reconciliation of the differences that lead both sides to consider the use of force. But it is necessary to consider that threat assessments are affected by the uncertainties discussed in the previous chapter, and that one's own and other states' foreign policies can lead to the emergence of new enemies.

Vulnerable policy goals and threats by enemies create a risk, and the reduction or treatment of that risk is the purpose of a nation's defence effort, guided by the theory of victory and implemented in the form of operational, as well as defence planning decisions. The defence effort is constrained by limited budgetary and personnel resources, as well as political and legal restrictions, which can relate to the way in which resources are made available (the choice between a conscript or volunteer force, for example), the way in which they are allowed to be spent (the prohibition of weapons systems such as non-conventional munitions or anti-personnel landmines, for example), or the way in which defence assets can be used to achieve strategic effect (through the political demand to respect international laws of war, for example).[200] These constraints will be seen as given herein, but the influence of uncertainty regarding the future availability of resources, or regarding changes to political and legal constraints, will be considered.

3.3.2 Risk, Strategic Surprise and Warning

A first way to develop theoretical approaches to risk in strategy is to look at strategic surprise.[201] The literature on that subject has mostly focused on surprise attacks, such as Pearl Harbour or the Yom Kippur War. Issues that have been highlighted in that context are signals and noise in the intelligence picture,[202] mental conceptions,[203] the roles of tactical indicators and strategic assumptions,[204] the idiosyncratic behaviour of individuals,[205] and the unwillingness of politicians to take action on the basis of an intelligence warning.[206]

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[200] These constraints can differ considerably between countries, whether they are consciously imposed or not. See for example: Stephanie G. Neuman, ed., *Defense Planning in Less-Industrialized States* (Lexington, MA: Lexington Books, 1984).

[201] Only Michael I Handel has explicitly focused on that connection in the large literature on the subject. See, for example, Handel, 'Intelligence and the Problem of Strategic Surprise,' pp. 14-17; and the discussion of his ideas in Wirtz, 'Theory of Surprise,' pp. 105-108.

[202] Roberta Wohlstetter, *Pearl Harbour: Warning and Decision* (Stanford: Stanford University Press, 1968).

[203] Avi Shlaim, 'Failures in National Intelligence Estimates: The Case of the Yom Kippur War,' *World Politics*, vol. 28, no. 3 (April 1976), pp. 348-380.

[204] Abraham Ben-Zvi, 'Hindsight and Foresight: A Conceptual Framework for the Analysis of Surprise Attacks,' *World Politics*, vol. 28, no. 3 (April 1976), pp. 381-395.

[205] Uri Bar-Joseph, 'Israel's Intelligence Failure of 1973: New Evidence, A New Interpretation, and Theoretical Implications,' *Strategic Studies*, vol. 4, no. 3 (Spring 1995), pp. 584-609.

[206] Richard K. Betts, *Surprise Attack: Lessons for Defense Planning* (Washington D.C.: The Brookings Institution, 1982).

In the context of studies focused on the victims of surprise,[207] Klaus Knorr identifies two types of surprise: 'Technical surprise', not incompatible with the prevalent set of expectations, but surprising because the enemy successfully concealed his intentions, and 'behavioural surprise', incompatible with the expectations held by the victim of surprise.[208] His two types of surprise are thus equivalent to the distinction between the two main types of surprise in Figure 5, *risk* and *indeterminacy* on the one hand, where possible outcomes are known but which are surprising due to the general *incertitude* of dealing with the enemy, and *ignorance* on the other hand where outcomes are unknown.

Other studies of strategic surprise centre on the motivation of the attacker to achieve surprise, and the use of deception to do so.[209] In addition, Michael I. Handel has studied technological surprise in war—looking at what was later to be called RMAs and surprise about the performance or existence of individual weapons systems—[210]and surprise in diplomacy.[211] Notwithstanding the different emphasis and perspectives of these works, their near-unanimous conclusion is that (tactical) surprise is inevitable, a judgment consistent with the discussion of unavoidable uncertainties in Chapter 2. Handel writes about efforts to escape this fact that

> Problems generated by bureaucratic and organizational deficiencies have no perfect solution. What may be an advantage in one case may be a disadvantage in another. While "post-failure" reforms may rectify one problem, they may create others. In the same way, bureaucracies and organizations are simultaneously helpful and damaging; but they are irreplaceable nonetheless.[212]

Given the wealth of literature on surprise attack, the number of works devoted to studying the consequences of inevitable surprise for defence planning is surprisingly small—Richard K. Betts' study of the issue in the context of NATO's Central Front in the 1980s stands out as the notable exception.[213] There is, however, a larger literature on the consequences for intelligence analysis that flow from the impossibility of eliminating surprise,[214] and which centres around the distinction between warning about

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[207] For overviews, see Ariel Levite, *Intelligence and Strategic Surprises* (New York: Columbia University, 1987); Ephraim Kam, *Surprise Attack: The Victim's Perspective* (Cambridge, MA: Harvard University Press, 1988); Betts, *Surprise Attack: Lessons for Defense Planning.*

[208] Klaus Knorr, ' Failures in National Intelligence Estimates: The Case of the Cuban Missiles,' *World Politics*, vol. 16, no. 3 (April 1964), pp. 462-463.

[209] For good discussions of historical deceptions, see for example Jon Latimer, *Deception in War* (London: John Murray, 2001); Reginald V. Jones, 'Intelligence and Deception,' in *Intelligence and National Security*, eds. Pfaltzgraff, Ra'anan and Milberg, pp. 3-22. For different theoretical perspectives on deception, see Daniel and Herbig, eds., *Strategic Military Deception.* See also Alex Roberto Hybel, *The Logic of Surprise in International Conflict* (Lexington, MA: Lexington Books, 1986).

[210] Michael I. Handel, 'Technological Surprise in War,' *Intelligence and National Security*, vol. 2, no. 1 (January 1987), pp. 5-53. See also Mahnken, *Uncovering Ways of War: U.S. Intelligence and Foreign Military Innovation, 1918-1941.*

[211] Handel, 'Surprise in Diplomacy.'

[212] Michael I. Handel, 'Avoiding Political and Technological Surprise in the 1980s,' in *Intelligence Requirements for the 1980's: Analysis and Estimates*, ed. Godson, p. 104.

[213] Betts, *Surprise Attack: Lessons for Defense Planning.*

[214] Stephen Marrin points out that some surprises, such as the end of the Cold War, are probably not due to 'secrets that could be discovered, than to intelligence 'mysteries'. Stephen Marrin, 'Preventing

impending enemy moves on a tactical and operational level on the one hand, and warning about longer-term, political and strategic adverse developments that could raise the probability of surprise on the other hand (Betts writes of 'factual-technical warning,' concentrating on capabilities and facts, and 'contingent-political warning,' concentrating on intentions and probabilistic in nature).[215]

In the words of Jack Davis,

> *Tactical warning* focuses on specific incidents that endanger US security interests ... The goal is to deter and limit damage by identifying in advance *when, where,* and *how* a declared or potential adversary will forcefully strike the Untied States directly, mount a challenge to US forces, personnel, or interests abroad, or make a menacing weapons breakthrough.[216]

The aim of a tactical warning* is thus announce an imminent danger or *predict future events*, i.e. to gain information about an issue that could a-priori be located in any of the sections of Figure 5 and to eliminate uncertainty about that issue altogether. Since it is usually very difficult, however, to discover something one is not looking for, tactical warning will in practice be about the realization of a particular strategic *risk* or *indeterminacy*.

Handel thus writes that

> we should try to think ahead about areas that are of vital interest and that may include unpleasant surprises for us in the future. Thinking about these problems in advance may cushion the impact of the surprise. Surprise is then reduced from a surprise in subject and timing, to a surprise solely in terms of timing.[217]

In other words, possible outcomes should be defined to transform situations of open expectations into *indeterminacy*. 'Contingent-political' or strategic warning*, therefore, does not aim at eliminating uncertainty per se. Instead,

> *Strategic warning* aims for analytical perception and effective communication to policy officials of important changes in the character or level of security threats that require re-evaluation of US readiness to deter, avert, or limit damage—well in advance of incident-specific indicators. Thus, strategic warning is characterized by inferential evidence and general depiction of the danger. The issues addressed here are *changes in the level of likelihood* that an enemy will strike or that a development harmful to US interests will take place and *changes in enemy mechanisms for inflicting damage.* The

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Intelligence Failures by Learning from the Past,' *International Journal of Intelligence and Counterintelligence*, vol. 17, no. 4 (October-December 2004), p.656.

[215] Richard K. Betts, 'Intelligence Warning: Old Problems, New Agendas,' *Parameters,* vol. 27, no. 1 (Spring 1998), pp. 26-35.

[216] Emphasis in original. Jack Davis, 'Strategic Warning: If Surprise is Inevitable, What Role for Analysis?,' *Occasional Paper,* vol. 2, no. 1 (Langley: Sherman Kent Centre for Intelligence Analysis, Central Intelligence Agency, 2003), p. 3.

[217] Handel, 'Avoiding Political and Technological Surprise in the 1980s,' p. 105.

> goal is to assist policy decisions on defensive preparedness and contingency planning, including preemptive actions, to manage the risks of potential threats.[218]

In other words, the aim of strategic warning is to correctly assess possibilities and probabilities and to *identify and assess future risks.* In general, the aim of strategic warning is thus to reduce the quantity and quality of uncertainty by developing open expectations, defining outcomes in order to transform *ignorance* into *indeterminacy*, and assigning probabilities or consequences to change *indeterminacy* into *risk.* Thinking about surprise in these terms shifts the focus from trying to avoid surprise altogether: "We have to learn to live with ambiguity. The next best thing to *avoiding* a surprise is being able to *cope* with it once it has taken place."[219] Not surprise itself, but the effects of it are the main danger. In such a perspective, prudence dictates that predictive accuracy is less important than preventing severe consequences. Topics for strategic warning should thus be selected according to their damage potential, not necessarily their likelihood.[220]

While the literature on surprise attack and strategic surprise focuses on enemy action, unexpected outcomes can also be due to a wide range of other factors. Any of the three constituting components of the strategic risk management task—political goals, enemies and defence capabilities—can be the source of surprise. This includes intelligence failures to predict the emergence of new enemies, such as the Iranian revolution,[221] unexpected budget cuts and the fact that "governments will consider using the ADF [Australian Defence Force] in circumstances that we have not envisaged,"[222] as the Australian *Defence 2000* White Paper states.

But one major, and generally underrated, source of surprise are the technical, psychological and social cause-effect relationships of the strategic pyramid that are used to predict strategic effect. Any of the assumptions that are part of that pyramid can, in principle, be a cause of surprise. At a technical level, for example, the US effort during World War II in the Pacific was severely hampered by closed expectations regarding the functioning of the Mark XIV submarine torpedo, which was plagued by deep running, defects in the magnetic exploders and faulty design of the contact exploders. "After twenty-one months of war, the three major defects of the Mark XIV torpedo had at last been isolated," Craig Blair writes, "Each defect had been discovered and fixed in the field—always over the stubborn opposition of the Bureau of Ordnance."[223] Surprise in the middle part of the pyramid occurs in the more familiar areas of tactical and operational art, as well as in the form of RMAs. But it can also, and often does, occur at

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[218] Emphasis in original. Jack Davis, 'Strategic Warning: If Surprise is Inevitable, What Role for Analysis?,' p. 3.

[219] Handel, 'Avoiding Political and Technological Surprise in the 1980s,' p. 106.

[220] Jack Davis, 'Strategic Warning: If Surprise is Inevitable, What Role for Analysis?,' p. 13.

[221] William J. Daugherty, 'Behind the Intelligence Failure in Iran,' *International Journal of Intelligence and Counterintelligence*, vol. 14, no. 4 (October 2001), pp. 449-484.

[222] Department of Defence, *Defence 2000* (Canberra: Commonwealth of Australia, 2000), p. 54.

[223] Craig Blair, *Silent Victory, The U.S. Submarine War Against Japan* (Philadelphia: J.B. Lippincott Company, 1975), p. 439.

the highest step, if a military victory does not lead to the realization of the intended political goals.[224]

3.3.3 A Concept of Strategic Risk

Knowledge about nearly everything in strategy is thus limited. Nearly all information that is available relates to possible, but not inevitable outcomes—situations of *risk* or *indeterminacy*—or is merely information about our lack of knowledge—situations of *ignorance*. But just as the effect of surprise is the problem rather than surprise itself, the limited knowledge on which strategy has to be formulated is in of itself a lesser source of danger than institutional risk, the threat that flows from the inability to correctly reflect and act upon the limitations in available information. Strategic risk also has to be assessed and evaluated in conjunction with one's defence capability; measuring either without reference to the other is, in the end, a meaningless exercise. A number of characteristics flowing from the discussion so far should thus be reflected in a concept of strategic risk:

There are several types of uncertainty that affect strategic risk, due to the limited ability to forecast the international system, the complexity of the strategic pyramid, the limitations of intelligence, friction and, none the least, the actions of the enemy. Since these uncertainties are of different natures, but all are relevant to the treatment of strategic risk, it is not possible to summarize all of them in a meaningful way in the form of one probability measure. A framework of strategic risk must therefore be able to incorporate a large number of different uncertainties.

Assessment of strategic risks alone is therefore insufficient to establish a hierarchy between them. Only at the risk evaluation stage, on the basis of the information provided by the risk assessment, can this be done in a meaningful way, since it is necessary to consider the different dimensions of consequences, the relative likelihoods, the certainty of assessment, the costs of risk mitigation, and the political goals under threat. It is impossible to compress the judgment inherent in this step into a formula or algorithm of some kind—there is, after all, no algorithm for policymaking either—and in many cases, assessment and evaluation cannot be properly separated.[225] Whether a risk that is considered prohibitive is unlikely but very destructive if it occurs—thermonuclear war, for example—or whether it has a low destructive potential but is very likely—such as the participation in stabilization operations—is in the end less

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[224] Colin S. Gray, *Transformation and Strategic Surprise* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2005), p. 16.

[225] After the end of the Cold War, the difference between the assessment of intelligence in US NIEs and its evaluation became, in some regards, even more politically sensitive than during the Cold War, for example. As clear-cut threats to national interests lessened during the 1990s, it became more difficult to estimate 'implications for the United States' while staying clear of (domestic) politics and value-laden judgments (Fulton T. Armstrong, 'Ways to Make Analysis Relevant But Not Prescriptive,' *Studies in Intelligence*, vol. 46, no. 3 (2002), <http://www.cia.gov/csi/studies/vol46no3/article05.html> (23 June 2005).). At the same time, a review in 1993-1994 found that policymakers were less interested in the CIA analysts' opinion than in facts, or, as Paul Wolfowitz put it in a succinct discussion of the relationship between analysts and policymakers, "I frequently think I am as capable of coming up with an informed opinion about a matter as any number of people within the Intelligence Community who feel that they have been uniquely anointed with this responsibility." (Paul D. Wolfowitz, 'Comment', in *U.S. Intelligence at the Crossroads: Agendas for Reform,* eds. Roy Godson, Ernest R. May, and Gary Schmitt (Washington D.C.: Brassey's, 1995), p. 76).

important than the fact that both represent threats of a high priority that have to be addressed in one form or another.

Furthermore, threats to strategic effectiveness emanate not from an abstract discrepancy between ends and means, but from the actions of enemies—whether they are actual or potential ones. Strategy is inherently adversarial, and it is impossible to discuss strategic risk without discussing the role of the enemy. Strategic effectiveness in the achievement of a nation's goals is the value that is at risk. Weighing the extent of the danger to a political goal, and the likelihood of failure, against the uncertainty about the situation and the cost that is associated with reducing a risk is thus an inherently political decision, whether it is made by politicians or not. Just as strategy is inseparable from politics, so is strategic risk.

It is necessary to strike a balance between the main purpose of a framework of strategic risk—to summarize risks and to reduce information—and the need to distinguish between risks that are of the same priority to the decisionmaker, but differ in fundamental characteristics. The following framework is, therefore, based on grouping risks into categories that are distinguished along a number of limited dimensions. In the following, three dimensions are considered:

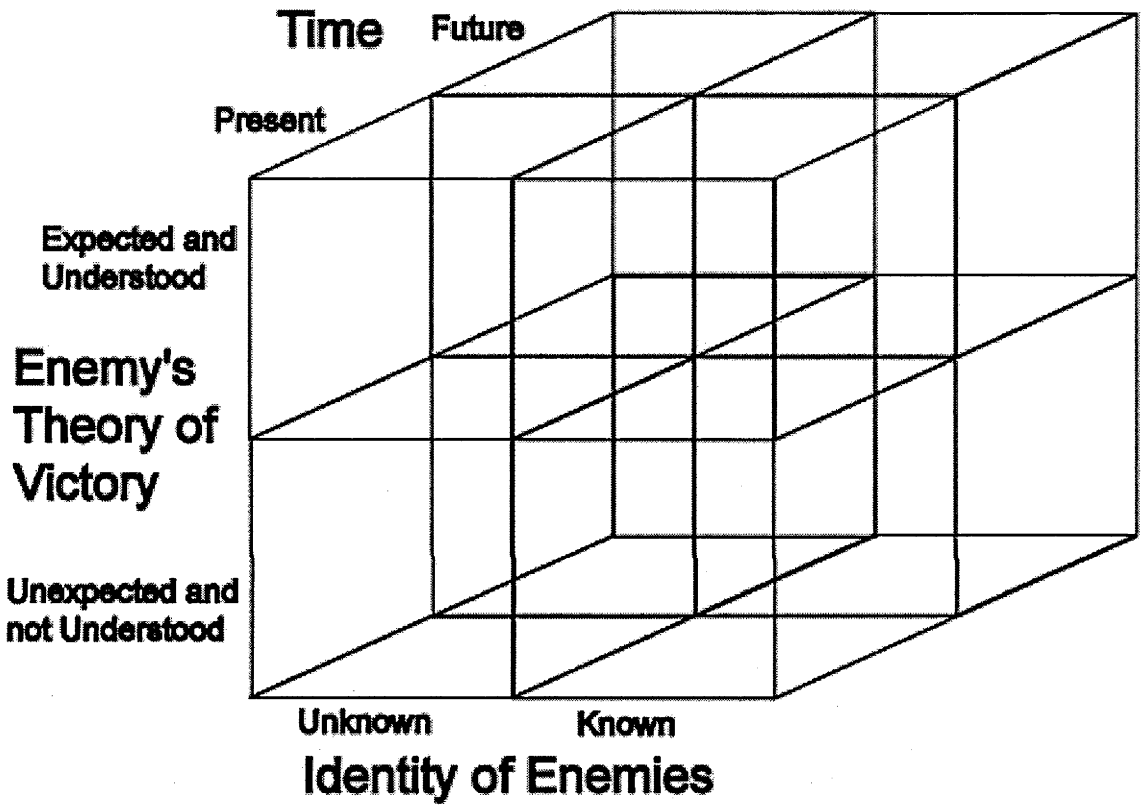
- Risks differ with regard to *time* since some relate to the present, and some only to the distant future. Time is an important dimension of strategic risk as the treatment of future risks will tend to generate lesser or different requirements from that of present risks. The certainty of assessment of the latter will also be generally less than that of the former. For the sake of simplicity, risks will be distinguished here into those of the present and those of the future.

- The *identity of enemies* is important since ultimately strategic risks are always caused by the deliberate actions of other actors on the international stage. But since it is not always possible to anticipate which actors have or will have intentions and interests that clash with one's own, it is necessary to distinguish known or expected enemies from unknown or unexpected ones. Risk assessment will usually concentrate on the former category, where intentions and/or capabilities indicate a strategic risk. The latter category includes those actors who are not considered since their intentions are not correctly assessed, or since their intentions change unexpectedly. This category can also include enemies that have not emerged as actors on the international arena yet, for example new trans-national groups. It is, of course, by definition impossible to list specific enemies in the unknown or unexpected group. It is, however, necessary to consider this category in order to account for the overall confidence in one's ability to forecast the emergence of new enemies in the international system, which can be greater at some times than in others. The likelihood of Algeria, Egypt, Saudi Arabia or Pakistan falling under the control of a hostile regime, for instance, is relatively small in each individual case. Taken together, however, the risk of future conflict between Western powers and an unspecified, currently friendly major Middle Eastern state is probably far from negligible.

- The *enemy's theory of victory and capabilities* can be analysed in parallel to the distinction between enemies of a known or unknown identity. It is thus possible to distinguish risks that involve enemy capabilities and ways of using them that are expected and understood on the one hand, or unexpected or not understood

on the other hand. While the former conform with well understood cause-effect relationships in the strategic pyramid, the latter do not and thus make it impossible or very difficult to define a reliable theory of victory to counter them in advance. While it is, of course, again not possible to make a list of capabilities and ways of using them that one does not know of yet, it is nevertheless necessary to make a judgment about the confidence in one's ability to predict the enemies' strategy and capability. This judgment will reflect one's familiarity with their cultural, historical, social and technological traditions, as well as their propensity to innovate and change their behaviour.[226]

FIGURE 9: STRATEGIC RISKS



The binominal nature of the dimensions used here is too simplistic to be justified in any attempt to account for strategic risks in reality, but the framework can easily be enlarged to account for more categories. Similarly, the framework can include any number of dimensions. A fourth dimension that would probably be included in any practical application is, for example, the nature of warfare that is associated with the risk, with categories such as peacekeeping, counterinsurgency, conventional or nuclear war. The framework is limited to three dimensions here in order to be able to convey it

[226] On the basis of eleven case studies of defence planning from the 19th and 20th century, Talbot Imlay and Monica Duffy Toft draw conclusions that are closely aligned with the theoretical framework developed herein. They write that "Uncertainty comes in many forms, but it can be usefully divided into three elements: (1) the difficulty of identifying friend and foe; (2) the difficulty of understanding the nature of future war; (3) the difficulty of determining its timing." Talbot Imlay and Monica Duffy Toft, 'Conclusion: Seven Lessons about the Fog of Peace,' in *The Fog of Peace and War Planning: Military and Strategic Planning under Uncertainty*, eds. Talbot Imlay and Monica Duffy Toft (London: Routledge, 2006), p. 249.

graphically as a two-by-two cube (see Figure 9), and since that number is sufficient for the classification of defence planning concepts in Chapter 5. Eight categories of strategic risk result, each of which would include specific or generic risks and be evaluated to be negligible, normal, transitional or prohibitive:

- Present, known enemies, understood theory of victory: For example, the Soviet divisions on the Fulda Gap.
- Future, expected enemies, understood theory of victory: For example, the use that China could make of its future blue water surface navy.
- Present, known enemies, unexpected theory of victory: For example, the Iraqi insurgency was unexpected (but imaginable) before the invasion.
- Future, expected enemies, unexpected capabilities: For example, a future Chinese submarine fleet that is much more effective than expected by its adversaries.
- Present, unknown enemies, understood theory of victory: The example mentioned above of a major Middle Eastern state coming under the control of a hostile leadership.
- Future, unknown enemies, understood theory of victory: A category similar to the preceding one.
- Present, unexpected enemies, theory of victory not understood: For example, Al Qaeda and the use of hijacked aircraft as a cruise-missile were unexpected by many countries' defence planners.
- Future, unknown enemies, theory of victory not understood: A category similar to the preceding one.

In summary, this chapter has introduced the concept or risk and described its multi-dimensional nature. Since risk always deals with the difference between possibility and reality of future events, the concept of surprise is inseparable from that of risk. It is necessary to distinguish the different purpose behind a descriptive risk assessment, and a subjective and value-laden risk evaluation. Both are however necessary to establish an order of priority between risks.

Existing concepts do not capture the fact that different types of uncertainty are inherent to strategic risk. Therefore, this chapter has approached strategic risk from two angles: First, by showing its relation with different kinds of strategic surprise, which led into a discussion of the difference between tactical and strategic warning. Second, by developing a framework of strategic risk that can convey uncertainty along several dimensions (such as the identity and theory of victory of one's adversaries), and which builds on an evaluation rather than mere assessment of threats.

As an analytical tool, this framework has several advantages over the existing concepts: First, it requires the strategist to make a judgment regarding risk categories that by definition go beyond his current state of knowledge, and to assess *indeterminacy* as well as *ignorance*. Second, the dimensions included in the framework already foreshadow some of the steps that have to be taken to treat different risks. Risks from unknown enemies and especially unknown theories of victory will, for example, call for precautionary strategies. Third, the framework can be used to evaluate risks in the context of different risk treatment programmes, a point further elaborated in Chapter 4. Fourth, it can help to manage expectations on the part of politicians and the public about what can reasonably be predicted and what cannot. Fifth, the relative importance of

these risks can serve as the foundation of a general typology of defence planning concepts in Chapter 5.

CHAPTER 4:

DEFENCE PLANNING AS RISK MANAGEMENT

Since a useful concept of strategic risk must accommodate different kinds of uncertainty, so must the process to manage it. This chapter analyses the defence planning process as a risk management problem, with special regard to the role of risk assessment and evaluation, the information available regarding possible outcomes, and risk treatment strategies for specific risks.

4.1 Perspectives on Risk Management

While it is impossible to create risk-free environments, "it may be possible to avoid, reduce, eliminate or transfer some of the risks."[227] Processes that contribute to this are called *risk management*. In general, risk management tries to answer the following questions:

> What can go wrong?
>
> What is the likelihood that it will go wrong?
>
> What are the consequences?
>
> What can be done and what options are available?
>
> What are the trade-offs in terms of all costs, benefits, and risks?
>
> What are the impacts of current management decisions on future options?[228]

The idea behind risk management is thus a very simple one.[229] Risk management processes can be undertaken at various scales of effort—from an individual person sitting down for an hour with a sheet of paper to decisions about the construction of nuclear waste facilities that involve hundreds, if not thousands of persons, take decades and cost billions of dollars. They can follow standardized, even automated procedures or merely consist of loosely assigned management responsibilities. Similarly, risk management can be a one-off activity or a constant part of day-to-day business. The

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[227] Management Advisory Board, *Guidelines for managing risk in the Australian Public Service*, p. 3.

[228] Stan Kaplan and B. John Garrick, 'On the Quantitative Definition of Risk,' *Risk Analysis*, vol. 1, no. 1 (1981), pp. 11-27, quoted in Committee on Science and Technology for Countering Terrorism, *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism* (Washington D.C.: The National Academies Press, 2002), pp. 306-307.

[229] "You will discover that risk is something you manage continually and is common sense" states the introduction to risk management in an Australian Public Sector Handbook, for example. Purchasing Australia, *Managing Risk in Procurement—A Handbook* (Canberra: Australian Government Publishing Service, 1996), p. v. See also Management Advisory Board, *Guidelines for managing risk in the Australian Public Service*. Martin Fone and Peter C. Young, *Public Sector Risk Management* (Oxford: Butterworth Heinemann, 2000) is a more detailed risk management handbook.

specific form that a risk management process takes is thus, despite many similarities in the basic structure, highly dependent on the particularities of the situation.[230]

Section 2.1.2 discussed the difference between strategy formation and subsequent planning. The design of a risk management process is part of the formation and codification of strategy under uncertainty, while its application is then part of more detailed planning procedures. In order to analyse the defence planning process as a risk management problem, a more detailed theoretical discussion of risk management is thus essential. This first half of the chapter will introduce the theory of risk management, while the second part will discuss defence planning as such a process.

4.1.1 Prediction and Choice

Two main components underlie a risk management process: a system of cause-effect relationships that is used to identify, assess and predict risks, and a choice between alternative courses of action. Risk management can thus be compared and paralleled with other processes that develop systems of causal relationships, or use them to make decisions (See Figure 10). All of these processes are ultimately based on two assumptions: First, that there is some kind of order in the world, and, second, that this order can be uncovered through logical argumentation.[231]

Section 2.1.5 discussed the structural similarity between scientific theory and the making of policy[232] and strategy[233]—all produce knowledge and involve the 'testing' of hypothesis, although the respective goals and motivations are quite different.[234]. How to rationally choose optimum courses of action among several alternatives is the study area of decision theory.[235] Rational decisionmaking as prescribed by that theory can be separated into several consecutive steps: Identifying a problem and determining goals or objectives, identifying alternatives, predicting payoffs for different states of the environment, using preferences to assign utility values to the payoffs, choosing one

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[230] Anthony Clark and Tim Brinkley, *Risk Management for Climate, Agriculture and Policy* (Canberra: Bureau of Rural Sciences, Department of Agriculture, Fisheries & Forestry, 2001), pp. 47-49.

[231] Wolf, *Organisation, Management, Unternehmensführung: Theorien und Kritik*, p. 27.

[232] Kugler situates policy as an intermediary between grand strategy and operational strategy (Richard L. Kugler, *Policy Analysis in National Security Affairs: New Methods For a New Era* (Washington D.C.: National Defense University, 2006), p. 64). In general, however, the distinction between the terms of strategy and policy is fluid, but the latter usually emphasizes a course of action, rather than an ends-means relationship.

[233] Also consider the following comment on strategy: " Strategy provides a coherent blueprint to bridge the gap between the realities of today and a desired future. It is the disciplined calculation of overarching objectives, concepts, and resources within acceptable bounds of risk to create more favourable future outcomes than might otherwise exist if left to chance or the hands of others." Yarger, *Strategic Theory for the 21st Century: A Little Book on Big Strategy*, p. 5.

[234] Blume, 'Policy as Theory: A framework for understanding the contribution of social science to welfare policy'. Political science textbooks usually contain discussions of policy cycles that are organized according to the procedural steps of policy making. Peter Bridgman and Glyn Davies, *The Australian Policy Handbook* (Crows Nest: Allen and Unwin, 3rd edition, 2004), for example differenciates identifying issues, policy analysis, policy instruments, consultation, coordination, decision, implementation and evaluation, but also discusses "Policy as hypothesis" (pp. 5-6).

[235] The author used the following two books for the discussion of decision theory: Franz Eisenführ and Martin Weber, *Rationales Entscheiden* (Berlin: Springer, 3rd edition, 1999); Kleindorfer, Kunreuther, and Schoemaker, *Decision Sciences: An Integrative Perspective*.

alternative, and implementing the decision. Since the decision has to be based on expected payoffs, it again involves a conception of reality of some kind that can be correct or incorrect. Decision theory provides the conceptual underpinning to a host of applied risk identification, assessment and evaluation procedures, as well as rules to choose between alternatives under uncertainty. Indeed, risk management is a special case of decision theory that aims to devise "a strategy [to] reduce and cope with societal risks in some rational explicit way."[236]

FIGURE 10: PERSPECTIVES ON FUTURE-ORIENTED DECISIONMAKING

Risk Management	Risk Identification	Risk Assessment	Risk Evaluation	Decision	Risk Treatment	Monitoring and Review
Science	Observation	Theory	Hypothesis		Experiment	Falsification or Acceptance
Policy	Observation	Conception of Reality	Policy Goals	Decision	Imple-mentation	Evaluation
Decision Theory	Identification of Goals	Environment, Alternatives and Payoffs	Preference and Utility	Decision	Implementation	
OODA-Loop	Observation	Orientation		Decision	Action	

Even John R. Boyd's OODA loop can be paralleled with risk management.[237] Boyd describes how success in combat and in strategy lies in presenting the enemy with a confusing picture of ambiguous and deceptive events, while attacking his physical capability to orient himself at the same time. Since the cognitive process of observation as well as orientation—which Boyd saw as consisting of analysis and synthesis within a framework of culture, experience and other factors—are influenced by mental images, inaccurate decisions will provide feedback that requires a reorientation, slowing down the cycle. In the end, the goal is to get 'inside' the enemy's OODA-loop and to paralyse his decisionmaking.[238] Boyd deserves special credit for being the only modern strategic theorist to make the importance of time the centrepiece of his work.[239] Since defence planning is part of the implementation of strategy, the time that it takes to adapt one's capabilities, plans and concepts to a changing threat environment thus can have an importance quite unlike that in most civilian risk management processes.

The parallels between all of these processes can illuminate three main points. First, risk management is not limited to processes that are explicitly labelled as such. Policymakers routinely have to recommend and implement specific courses of action

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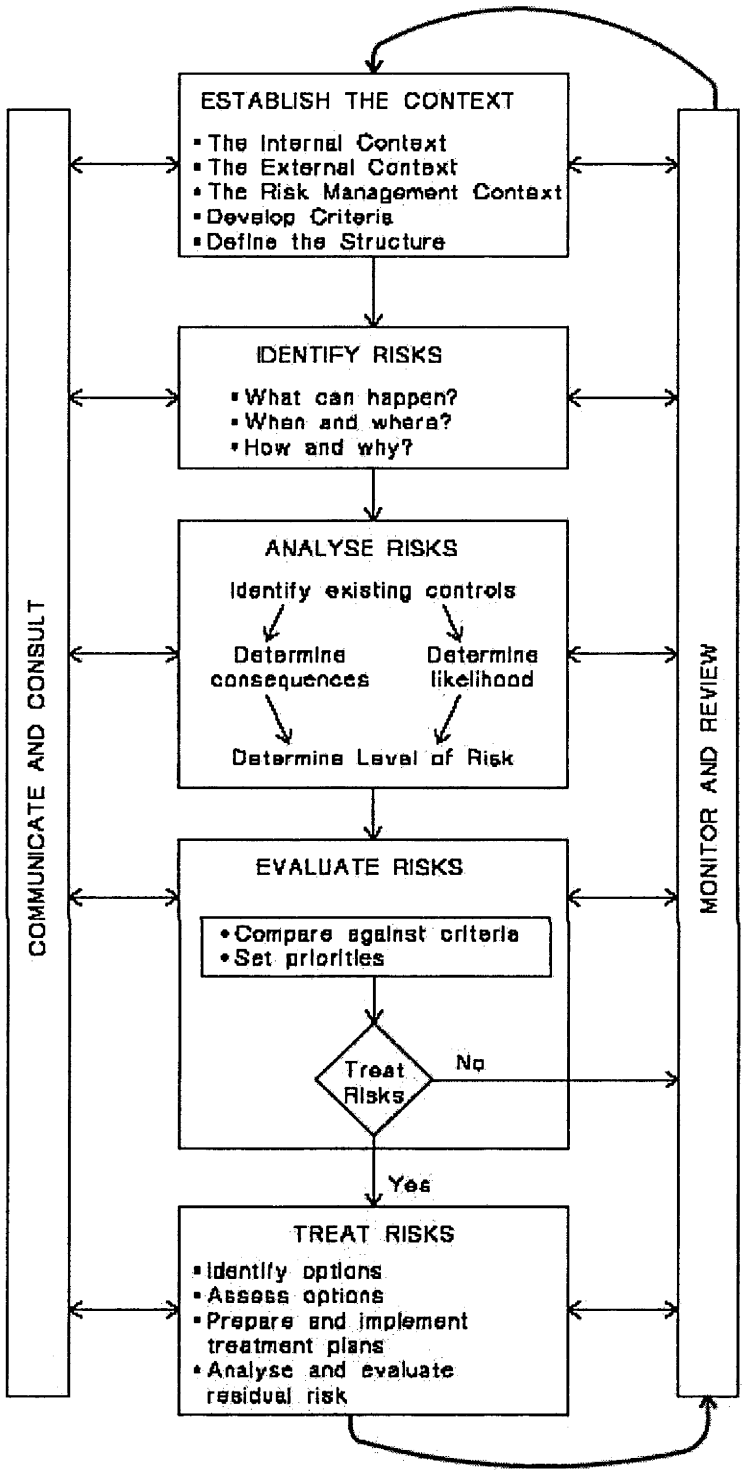
[236] David Alexander, *Principles of emergency planning and management*, pp. 58-59.

[237] I am grateful to Bob Wylie for pointing this parallel out to me.

[238] The roots of the OODA loop lie in the Korean War, where Boyd concluded that the reason for the vastly superior performance of US Sabre jets lay in the fact that its design permitted a quicker reaction than that of the opposing MIGs. Boyd never wrote a comprehensive summary of his ideas and mostly relayed them through briefings. For a summary, see Fadok, *John Boyd and John Warden: Air Power's Quest for Strategic Paralysis*. The OODA loop is usually associated with high-intensity warfare, but it is equally important to recognize in time the type of war that the enemy is waging against oneself—perhaps the main failure of US policy in Iraq.

[239] Gray, *Modern Strategy*, p. 172.

FIGURE 11: RISK MANAGEMENT AS A SEQUENTIAL PROCESS



Source: Council of Standards Australia and Council of Standards New Zealand, *Risk Management*, AS/NZ 4360:2004 (Sydney: Standards Australia, 2004), p. 13.

under uncertainty. Like scientific experiments, policymaking and risk management produce knowledge that can be used to continuously evaluate past decisions.[240] Second, *incertitude* makes it impossible to formulate a reliable deterministic forecast in the risk

[240] Committee on Risk Characterization, *Understanding Risk: Informing Decisions in a Democratic Society* (Washington D.C.: The National Academy Press, 1996), pp. 164-166.

assessment stage and, as in an experiment, the final outcome cannot usually be known in advance. The risk treatment decision therefore can turn out to have been sub-optimal *ex-post*, although it was the correct one given the information that was available *ex-ante*. Third, in order to reduce the risk of decisions that turn out to be sub-optimal *ex-post*, risk treatment can include the acquisition of knowledge as a goal in itself, in order to raise the certainty of assessment of previously not well defined risks.

4.1.2 Assessment and Evaluation in the Risk Management Process

Figure 11 shows the detailed process diagram of risk management as defined in the Australian Standard, which closely follows the definition of decision problems in decision theory and is meant to achieve "a more confident and rigorous basis for decision-making and planning."[241] Yet, it is not always possible to implement the risk management process in this way if problems cannot be easily dissected into sequential steps, or if a major part of the process is to convince and gain acceptance of the process from third parties. The way a problem is formulated in the setting of the context, the first stage of the process, can predetermine many of the later risks and options that are considered. Complex problems can therefore sometimes only be formulated during the analysis stage.

The second stage of the process, risk identification, can aim to identify risks *to* something, for example to a project schedule. It can also identify risks *from* something, for example from a new technology. Either can be difficult in complex systems that, by definition, defy easy characterization due to the number of causal relationships, time lags and non-linear behaviour. In these cases, it might merely be possible to identify variables that can stabilize the system. Sometimes, all that is possible is to identify subsystems that are causes of changes (agents) and others that are affected by these changes (reagents), while the relationship between them remains unknown. [242] Precautionary strategies to deal with such situations will be briefly surveyed in the following section.

The third and fourth stages, risk assessment (or analysis) and risk evaluation, are often referred to as risk characterisation.* They can be difficult to separate, especially if uncertainty other than statistical uncertainty is important and data has to be synthesized, which will involve implicit value judgments. The US National Academy's Committee on Risk Characterization thus sees risk characterization as a process that combines analysis and deliberation (see Figure 12):

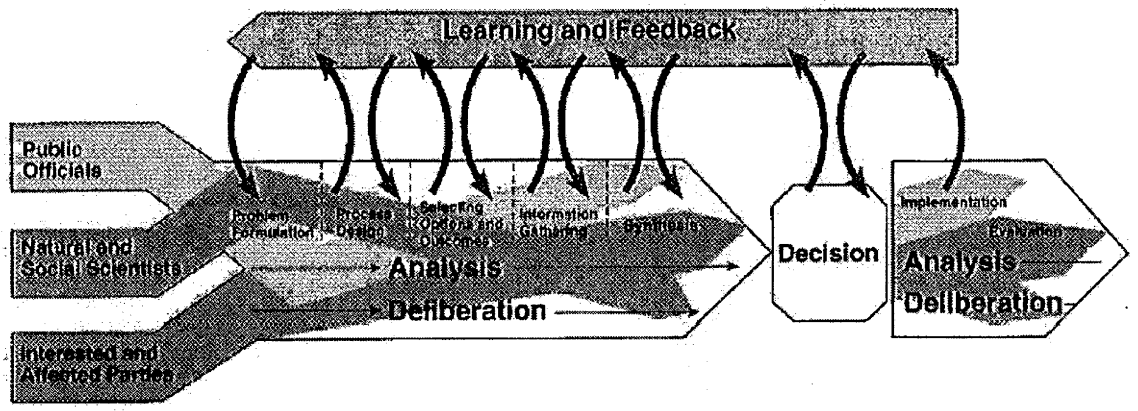
> Analysis uses rigorous, replicable methods developed by experts to arrive at answers to factual questions. Deliberation uses processes such as discussion, reflection, and persuasion to communicate, raise and collectively consider issues, increase understanding, and arrive at substantive decisions. Deliberation frames analysis and analysis informs deliberation. Thus, risk characterization is the output of a recursive process, not a linear one. Analysis brings new information into the process;

[241] Council of Standards Australia and Council of Standards New Zealand, *Risk Management*, p. 1.

[242] Advisory Council on Global Change, *World in Transition: Strategies for Managing Global Environmental Risks*, pp. 194-198.

deliberation brings new insights, questions, and problem formulations; and the two build on each other.[243]

FIGURE 12: ANALYSIS AND DELIBERATION IN RISK MANAGEMENT



Source: Committee on Risk Characterization, *Understanding Risk: Informing Decisions in a Democratic Society* (Washington D.C.: The National Academy Press, 1996), p. 28.

Risk characterization must be a decision-driven activity that has to consider risks in the light of alternative courses of action:

> The purpose of risk characterization is to enhance practical understanding and to illuminate practical choices. A carefully prepared summary of scientific information will not give the participants in a risk decision the understanding they need if that information is not relevant to the decision to be made. It is not sufficient to get the science right; an informed decision also requires getting the right science.[244]

Once causal relationships and sources of harm have been identified, it can be possible to estimate parameters and variables in a model to derive qualitative or quantitative information on the identified risks.[245] In general, ignorance about a source of risk (i.e. modelling and completeness uncertainty) is a more common problem in reality than a wrong estimate of a considered parameter or variable (data uncertainty). Nevertheless, a "healthy dose of scepticism and humility is appropriate in interpreting any summary of information on risk and uncertainty," since uncertainty-reducing techniques like simulations do not generate real information as scientific research does, but are nevertheless often presented in the same way.[246] In practice, it is common to use 'conservative' estimates in the analysis stage to account for uncertainty in the data. This implies a value judgment regarding the tolerable uncertainty, and it is possible to

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[243] Committee on Risk Characterization, *Understanding Risk: Informing Decisions in a Democratic Society*, p. 20.

[244] Ibid., p. 16.

[245] Qualitative and quantitative approaches are usually mixed in reality, since the former are often based on ordinal scales that rank risks and consequences in pre-defined categories. See the short discussion in Shortreed, Hicks, and Craig, *Basic Frameworks for Risk Management, Final Report*, pp. 31-37.

[246] Committee on Risk Characterization, *Understanding Risk: Informing Decisions in a Democratic Society*, pp. 112-113.

argue that this should properly be left to the decisionmaker.[247] However, there is still no commonly accepted approach to characterize uncertainty in a quantitative way.[248]

Formal evaluation and analysis methods always reduce the dimensions of risk, often into just one index. They can be a powerful tool to simplify complex problems and to make risks and alternatives comparable. But they also invariably embed value choices that are often highly contentious, yet remain hidden from uninformed decisionmakers in seemingly technical methodology. One commonly used method to which this especially applies is cost-benefit (or risk-benefit) analysis, which compares alternatives and risks by calculating the net present value of the (expected) costs and benefits associated with a risk and risk treatment alternatives.[249] The first important area in which significant value judgment enters this process lies in the determination of prices for such things as human life or a clean environment. Not only would some people be opposed to the idea that these can or should be measured in monetary terms, but the prices are also usually determined though 'bootstrapping,' with all the associated problems that affect this method. The second important value judgment lies in the fact that it is necessary in this method to discount future cost and benefits. Even with very low discount rates, deaths and destruction that occur a few decades in the future then hardly influence the overall result. In the word of an expert panel on the method, it should thus be noted that "[b]enefit-cost analysis is neither necessary nor sufficient for designing sensible public policy."[250]

4.1.3 Decisionmaking and the Precautionary Principle

After the evaluation of a risk, a choice has to be made between different options to reduce it or doing nothing. Rational decisionmaking on the basis of information about future states of the environment, alternative courses of action and related payoffs is the question that lies at the centre of decision theory.[251] There are numerous variants of

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[247] In nuclear power plant safety, conservative estimates were long prescribed by the licensing authorities to compensate for lack of knowledge. With advances in the understanding of the underlying phenomena, these restrictions have later (in the year 1988 in the United States, for example) been relaxed and operators are now allowed to make more use of 'Best Estimates'. AEA Technology Ltd, *25 Years of Community Activities towards Harmonization of Nuclear Safety Criteria and Requirements—Achievements and Prospects*, Report for the European Commission AEAT/R/PSEG/0404 Issue 4 (Brussels: European Commission, 2001), p. 72.

[248] Committee on Risk Characterization, *Understanding Risk: Informing Decisions in a Democratic Society*, pp. 66-67; Richard H. Moss and Stephen H. Schneider, 'Uncertainties in the IPCC TAR: Recommendations to Lead Authors For More Consistent Assessment and Reporting,' in *Guidance Papers on the Cross Cutting Issues of the Third Assessment Report of the IPCC*, eds. R. Pachauri, T. Taniguchi and K. Tanaka (Geneva: World Meteorological Organization, 2000), pp. 33-51. See also the following classic: Sherman Kent, 'Words of Estimative Probability'.

[249] Methods that are similar to cost-benefit analysis are cost effectiveness analysis, which identifies the least expensive method to achieve a given target, and socio-economic analysis, which includes macroeconomic and distributional effects.

[250] K.J. Arrow, M.L. Cropper, G.C. Eads, R.W. Hahn, L.B. Lave, R.G. Noll, P.R. Portney, M. Russell, R. Schmalensee, V.K. Smith and R.N. Stavins, *Benefit-Cost Analysis in Environmental, Health, and Safety Regulation: A Statement of Principles* (Washington D.C.: American Enterprise Institute, 1996), pp. 3, 7, 10, quoted in Committee on Risk Characterization, *Understanding Risk: Informing Decisions in a Democratic Society*, p. 104.

[251] Although the recommendations presented here are still very theoretical and abstract, they are already an 'applied' version of decision theory. Its basis are decision rules set down in the language of mathematical equations and formal logic. There are several versions, which mostly differ in view they

decision problems, but the theoretical procedures for decisions under uncertainty can be roughly divided into those for situations in which probabilities and payoffs are known, and those where probabilities are unknown (i.e. *risk* and *indeterminacy* respectively). If both are known, decision theory prescribes a decision on the basis of mathematical optimisation of either the expected payoff (in the case of a risk neutral decisionmaker), or of a Von-Neumann-Morgenstern utility function that can incorporate risk preferences. For a situation in which probabilities are unknown, a variety of decision procedures has been developed over recent centuries from which a decisionmaker can choose the one that fits his or her (risk) preferences.[252]

The scope for practical applications of these basic decision theory routines is however limited, not the least since all of them presume that possible outcomes are known (and thus cannot be easily applied to situations of *ignorance*). Due to the limited human cognitive and mental capabilities, decisionmakers often demonstrate satisficing rather than optimising behaviour.[253] The number of alternatives under consideration is therefore usually kept low, and complex problems are disaggregated and solved sequentially (with the use of heuristics rather than algorithms).[254] Policymakers also exhibit preferences for small, incremental decisions over far-reaching and irreversible choices.[255]

A particular difficulty presents itself when information about a risk is so limited that it cannot be assessed with any certainty, but indications are available that grave harm is at least a possibility. In these situations dominated by uncertainty, a decision to reduce (potential) risks on the basis of the Precautionary Principle can be called for. According to the British government,

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take on the applicability of the dominance criterion in situations in which alternatives change the probability of different states of the environment. Since no risk management process of interest here can make use of such highly abstract decision rules, these differences are not relevant for this thesis. For a good overview on the different versions of mathematical decision theory, see James M. Joyce, *The Foundations of Causal Decision Theory* (Cambridge: Cambridge University Press, 1999).

[252] The best known are maximin (select that alternative, usually the line of a payoff matrix, that maximizes the minium payoff over all states of the environment, which are the columns of the payoff matrix) for risk averse decisionmaker, and maximax (maximize the maximum payoff over all states of the environment) for decisionmakers that have a preference for risk. Both are combined in the Hurwicz-rule, weighted by a factor chosen by the decisionmaker. Under the Savage rule, the ex-post regret of the decisionmaker is minimized: First, the highest maximum payoff of each state of the environment (column) is subtracted from each payoffs in the column, then the modified payoffs are added up for each line and the alternative with the highest resulting sum is chosen. The Laplace rule is based on the assumption that, since no other information is (by definition) available, all states of the environment should be presumed equally probable, and an expected payoff on this basis be maximized. Wolf, *Organisation, Management, Unternehmensführung: Theorien und Kritik*, p. 110.

[253] Under the Kepner-Tregoe approach, alternatives that do not fulfil minimum 'must' criteria are dropped from consideration, and the others are evaluated in a second step according to 'want' criteria, weighted according to previously defined importance. Peter G. Moore, *The business of risk* (Cambridge: Cambridge University Press, 1983), pp. 205-213.

[254] Herbert A. Simon, *Administrative Behavior—A Study of Decision-making in Administrative Organizations* (New York: Macmillan, 1953), pp. 61-109.

[255] James E. Dougherty and Robert L. Pfaltzgraff, *Contending Theories of International Relations* (New York: Longman, 5th edition, 2001), p. 562.

> The purpose of the Precautionary Principle is to create an impetus to take a decision notwithstanding scientific uncertainty about the nature and extent of the risk, i.e. to avoid 'paralysis by analysis' by removing excuses for inaction on the grounds of scientific uncertainty.[256]

This principle should thus be distinguished from mere prudence, which equates to risk-averse decisionmaking and includes, for example, making conservative estimates, or using ALARA ('as low as reasonably achievable') decision routines. The Precautionary Principle is not uncontroversial[257] and is widely discussed in such diverse areas as fisheries protection, international trade law and consumer protection.[258] It has, however, become formalised as a general policy framework in recent years, especially after the European Commission issued a landmark 'Communication' on the subject that puts it into the context of established risk assessment, evaluation and management processes.[259] An example of the application of the precautionary principle at the global level is the widespread belief that it is necessary to address the emission of greenhouse gasses even in the face of significant uncertainty about their climatological effect. At the domestic level, the principle often entails the reversal of the burden of proof on, for example, pharmaceutical companies to show the absence of danger from new products.

Application of the principle implies that harmful effects could exist but that a knowledge deficit does not permit to use traditional risk management methods. The two main components of its application are a political decision regarding the acceptable level of risk that can be imposed on the society, and measures that are subsequently undertaken to reduce a potential risk. These measures should be proportional to the desired level of protection, and consistent with measures already undertaken in similar circumstances. If restrictions are imposed under the principle, scientific research should be undertaken to improve the risk assessment and re-evaluate the measures in the light of new evidence.[260]

A European Union research project on the application of the precautionary principle produced a framework that combines precautionary decisionmaking with other risk management processes. It begins with a screening phase in which fundamental

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[256] Inter-Departmental Liaison Group on Risk Assessment, *The Precautionary Principle: Policy and Application* (London: Health and Safety Executive, 2002), p. 6.

[257] Per Sandin, Martin Peterson, Sven Ove Hansson, Christina Rudén and André Juthe, 'Five charges against the precautionary principle,' *Journal of Risk Research,* vol. 5, no. 4 (2002), pp. 287-299.

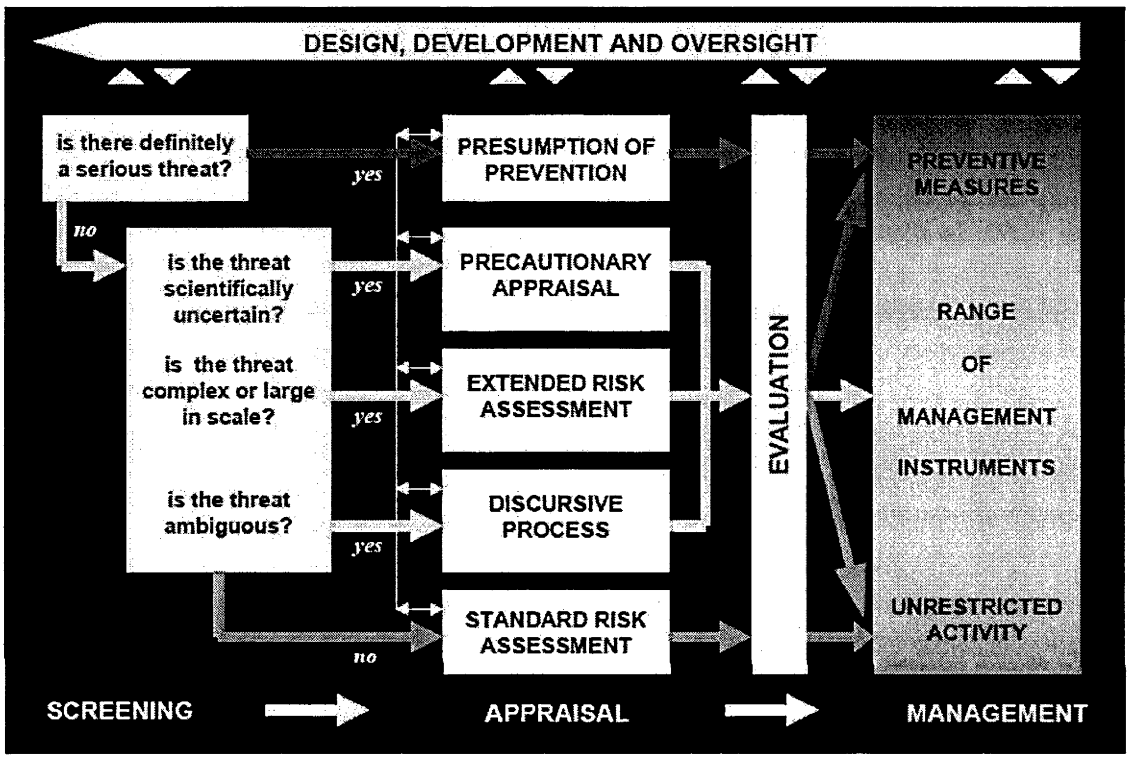
[258] See, for example, the following bibliographies: Dayna Nadine Scott, 'Bibliography: The Precautionary Principle,' *Publication* No. 452 (Toronto: Canadian Environmental Law Association, 2003); Williams C.G. Burns, *Bibliography: The Precautionary Principle*, University of Redlands Precautionary Principle Project (P3), <http://www.institute.redlands.edu/p3/bibliography.htm> (23 September 2005).

[259] Commission of the European Communities, *Communication from the Commission on the precautionary principle*, COM (2000) 1 (Brussels: European Union, 2000). For an (American) critique of that 'Communication', see John D. Graham and Susan Hsia, 'Europe's precautionary principle: promise and pitfalls,' *Journal of Risk Research*, vol. 5, no. 4 (2002), pp. 371-390. See also Christine Noiville, Frédéric-Yves Bois, Philippe Hubert, Reza Lahadiji, and Alain Grimfeld, 'Opinion of the Committtee for Prevention and Precaution about the Precautionary Principle,' *Journal of Risk Research,* vol. 9, no. 4 (June 2006), pp. 287-296.

[260] Commission of the European Communities, *Communication from the Commission on the precautionary principle*, pp. 13-21.

characteristics of the risk are determined, such as its potential severity and the certainty with which it can be assessed. Depending on the outcome of this phase, the risk is then dealt with in an appraisal phase that takes different forms depending on the characteristics of the risk (Figure 13).[261] Some of these appraisal methods can best be demonstrated in the light of the eight 'mythological' risk classes discussed in Section 3.1.3:

FIGURE 13: PRECAUTIONARY RISK REGULATION



Source: Ortwin Renn, Marion Dreyer, Andreas Klinke, Christine Losert, Andrew Stirling, Patrick van Zwanenberg, Ulrich Müller-Herold, Marco Morosini, and Elizabeth Fisher, *The Application of the Precautionary Principle in the European Union, EU-Project 'Regulatory Strategies and Research Needs to Compose and Specify a European Policy on the Application of the Precautionary Principle' (PRECAUPRI)* (Stuttgart: Institut für Technikfolgenabschätzung, 2002), p. 7.

- Preventive measures would be applied outright if a serious threat is found to definitely exist.
- Standard risk assessment methods would be used for risks that are neither large in scale, nor ambiguous or uncertain.
- Risks in the Cyclops and Damocles classes, which are known with a relatively high certainty of assessment, require an extended risk assessment process with additional scientific input and expert discourse.
- Pythia and Pandora risks, characterized by low certainties of assessment, require an appraisal on the basis of the precautionary principle.

[261] See also Ortwin Renn, *White Paper on Risk Governance: Towards an Integrative Approach* (Geneva: International Risk Governance Council, 2006).

- In order to treat Cassandra and Medusa risks, characterized by long delay effects and a high potential for social mobilization, respectively, discursive processes aimed at raising public awareness are most appropriate.[262]

4.1.4 Risk Treatment

Any measure that is purposefully taken before a risk materializes and that raises the acceptability of the residual risk constitutes risk treatment.[263] Since risk is usually conceptualised in terms of likelihood and consequences, risk treatment activities are also often separated into those that reduce the probability of the risk, or its consequences. But depending on the dimensions that were decisive for a risk's evaluation as requiring attention, risk treatment can also, for example, reduce the risk through compensatory measures, if an uneven exposure of certain individuals made the risk unacceptably high (and the damage is compensatable). If a risk is characterized by a particularly low certainty of assessment, research alone, which leads to the improvement of the model on which risk is assessed, can change the priority accorded to the risk. The exact content and combination of risk treatment strategies are thus specific to the context of each situation. The model that has been used to assess the risk in the first place can usually be used to assess the effect of the risk treatment program, as the resulting residual risk must again be evaluated together with the costs that the program incurs.

While this process is often straightforward for standard risk assessment processes, uncertainty usually prevents a similar method if action is taken on the basis of the precautionary principle. In practice, the principle therefore involves the making of assumptions to form a range of credible scenarios, which can then be analysed with standard risk assessment procedures.[264] If it is being applied due to a lack of scientific information regarding the underlying cause-effect relationships, for example since the potential risk arises out of a complex system, it will usually not be possible to design measures to reduce the (unknown) consequences and likelihood of the risk. In these situations, indirect precautionary measures can be applied. These are commonly used in the form of safety design principles in engineering, such as functional diversity and redundancy of important systems, decoupling and separation of sub-units, modularity,

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[262] Ortwin Renn, Marion Dreyer, Andreas Klinke, Chistine Losert, Andrew Stirling, Patrick van Zwanenberg, Ulrich Müller-Herold, Marco Morosini, and Elizabeth Fisher, *The Application of the Precautionary Principle in the European Union, EU-Project 'Regulatory Strategies and Research Needs to Compose and Specify a European Policy on the Application of the Precautionary Principle' (PRECAUPRI)* (Stuttgart: Institut für Technikfolgenabschätzung, 2002), pp.8-9. See also Klinke, Andreas, Marion Dreyer, Ortwin Renn, Andrew Stirling and Patrick Van Zwangenberg, 'Precautionary Risk Regulation in European Governance,' *Journal of Risk Research*, vol. 9, no. 4 (June 2006), pp. 373-392; Andreas Klinke and Ortwin Renn, 'Precautionary principle and discursive strategies: classifying and managing risks,' *Journal of Risk Research*, vol. 4, no. 2 (2001), pp. 159-173; Andreas Klinke and Ortwin Renn, 'Promotheus Unbound: Challenges of Risk Evaluation, Risk Classification, and Risk Management,' *Working Paper,* no. 153 (Stuttgart: Akademie für Technikfolgenabschätzung, 1999). A short summary of this paper is available in Ortwin Renn and Andreas Klinke, 'Systemic risks: a new challenge for risk management,' *European Molecular Biology Organization Reports*, vol. 5, special issue (2004), pp. 41-46.

[263] Risk treatment thus includes the preparation of consequence management and damage control activities that can be undertaken as damage occurs.

[264] Inter-Departmental Liaison Group on Risk Assessment, *The Precautionary Principle: Policy and Application*, pp. 9-10, 16-17.

and elasticity and resilience to external disturbances. They can be distinguished into agent-, reagent-, and dynamic strategies:

- *Agent* management strategies include exclusion (the abstention from activities that could cause a risk), deflection (directing the effect and influence of the agent system away from the reagent), and containment (preventing effects from leaving the agent system). In general, agent management is thus characterized by attention being paid to reducing the sources of a risk.

- *Reagent* management strategies are exposure reduction (Avoiding the effects and influences of the agent by moving the reagent, or protecting the reagent from them), desensitation (Making the reagent system modular to prevent domino effects, or making it more elastic by promoting autonomous avoidance and self-healing), and substitution of the reagent system in order to compensate for a failure (This can be achieved through redundancy, i.e. the multiple availability of reagent systems, the diversity of reagent systems to reduce the impact of type-specific vulnerabilities, or compensation if reagent systems can be replaced). In general, reagent management is thus characterized by attention being paid to protecting the vulnerability threatened by a risk.

- *Dynamic* strategies combine agent management, reagent management and research: Adaptation is based on the step-wise introduction of the changes to the agent system, in par with the implementation of agent and reagent management strategies. Iteration combines agent and reagent management and research to reduce the scientific uncertainty by analysing and observing small, gradual changes to the overall system. Finally, fuzzy control aims at stabilizing the overall system by observing a few critical parameters and using agent and reagent management flexibly and with a high frequency.[265] In general, dynamic strategies are thus characterized by the generation of general or specific knowledge.

- In contrast, *direct risk treatment* as discussed above entails using known cause-effect relationships between the agent and reagent systems to undertake targeted steps that directly influence the likelihood or consequences associated with the risk.

Finally, choosing a way of treating a risk is necessary, but not sufficient for risk reduction, if it has to be implemented in an institutional context. The risk treatment options need to include plans that detail not only the proposed actions, but also resource demands, responsibilities, timelines, performance measures and reporting and monitoring requirements. Especially if the monitoring phase of the risk management process is open-ended, it is important to collect, evaluate and disseminate lessons learned throughout the process.[266] If the certainty of assessment of the risk (or of the effect of the risk treatment itself) is low, monitoring and review of the risk treatment have to be geared less to the mere control of performance parameters than to the production of new knowledge about the risk and its treatment. A regular review of the

[265] Council of Standards Australia and Council of Standards New Zealand, *Risk Management*, pp. 286-292.

[266] Ibid., pp. 21-23.

risk treatment decision or even the use of a constant, cyclical risk management framework should therefore be considered as part of any risk treatment plan.

4.2 Defence Planning as a Risk Management Process

This section is pivotal in the sense that it draws on the concepts of risk and risk management developed so far, and lays the foundations for the definition of four ideal defence planning concepts in the following chapter. It will first discuss defence planning as codification of political guidance and show how the concept of certainty of assessment can be applied in that context. Then, it develops a framework of defence planning as risk management that includes three basic steps: The assessment and evaluation of a risk pattern, the definition of requirements to treat that pattern, and the development of a force structure to meet these requirements.

4.2.1 Codification and Strategic Guidance

Defence planning in practice is done differently in every country, and the processes are usually undergoing constant change. More often than not they are highly obscure, heavily influenced by idiosyncrasies and traditions, and distorted by particular interests of military services, civilian bureaucracies and politicians who try to channel defence dollars into their local constituencies. Numerous committees, civilian and military officials are involved, who produce an even greater number of regular documents. To confuse the observer even more, the titles of these documents usually consist of seemingly random combinations of a very limited number of adjectives ('National,' 'Joint' or 'Strategic') and nouns ('Strategy,' Requirements,' 'Capability', 'Contingency,' 'Guidance,' and 'Planning' or 'Plan'). But since the basis for decisions and the relationships between these documents are often different in reality from those on paper, this is not the place to discuss any existing defence planning system.[267] Instead, some general remarks about the task and its relationship with strategy will be made.

Section 3.3.1 described how strategic risks are created by the combination of vulnerable political goals and threats from enemies in the international system. The definition of national goals that might be considered under threat, of priorities between strategic risks, and judgments about the use of limited resources for the defence or other tasks, are inherently subjective and political. The pattern of strategic risk that is to be treated by the defence effort is thus the first part of what might best be called political guidance.

The task and raison d'être of military forces is to treat these politically defined strategic risks through strategic effect in peacetime, usually conceptualised as deterrence and dissuasion,[268] as well as in war. If a country carries strategic weight, it will seek to directly influence the enemy. If it does not, it will seek strategic effect through support to its allies. Either way, the system of cause-effect relationships that transforms its

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[267] For a good and concise discussion of these issues in the US context of the mid-1990s, see Douglas C. Lovelace and Thomas-Durrell Young, *U.S. Department of Defense Strategic Planning: The Missing Nexus* (Carlisle: Strategic Studies Institute, U.S. Army War College, 1995).

[268] Richard L. Kugler, 'Dissuasion as a Strategic Concept,' *Strategic Forum,* no. 196 (Washington D.C.: National Defense University, 2002); Jonathan Hagood, 'Dissuading Nuclear Adversaries: The Strategic Concept of Dissuasion and the U.S. Nuclear Arsenal,' *Comparative Strategy*, vol. 24, no. 2 (April-June 2005), pp. 173-184.

effort into strategic effect is that of the strategic pyramid. These relationships are easier to identify *ex-post* than to predict *ex-ante,* but they must nevertheless be predicted to outline at least the very general outline of a theory of victory. This theory is usually quite rudimentary at its inception and limited to only the highest stages of the strategic pyramid, but it needs to explain in principle how activities by the defence organization can reduce current and future strategic risk. The development of this theory of victory amounts to strategy formation and is a process that relies on synthesis, experience, and creativity, and the scope for prescriptive theory and analytical approaches here is thus very limited. While defence planners can assist in their role as strategic analysts by drawing up supporting analysis and studies, these will be largely ad-hoc and not conducted within a formal framework. The theory of victory is the second part of political guidance.

In Australia, a public version of political guidance is summarized in the Defence and Foreign Policy White Papers, in the United States in the National Security Strategy and regular defence reviews. Political guidance gives purpose and direction to the defence effort, and explains in broad terms what it is trying to achieve (a priority order of strategic risks) and how it should go about doing so (a theory of victory). The shape of subsequent and more detailed decisions should thus logically flow from the political guidance, which implies that a top-down development of defence planning is the most consistent framework for the task.[269]

Risk priorities and the theory of victory in the political guidance should, for example, ultimately drive the development of operational concepts. These

> provide, in an operational sense, the specific military capabilities that will, in concert with other capabilities, allow us to implement the strategies set forth in the [guidance] ... These concepts of operations must ... describe the framework, ... the systems, equipment, and tactics that are required to provide the capability being sought.[270]

Operational concepts thus have five main functions: To guide planning and action in warfare; to provide a foundation for training; to be the conceptual basis of the organization of the armed forces; to influence the development of weapons systems; and to be used in broader political debates about security policy.[271] They should address military tasks that can be derived from the political guidance, and their implementation can direct many other detailed decisions on procurement, training, doctrine and operational plans. In practice, however, the impetus to develop a new operational concept often comes from 'below', from a specific service, which then develops doctrine and new equipment based on the platforms specific to its environment. In order to compare these solutions to concepts based on platforms of other services or to

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[269] For a discussion of other methods, see Henry C. Barlett, G. Paul Holman, and Timothy E. Somes, 'The Art of Strategy and Force Planning.' in *Strategy and Force Planning*, ed. The Strategy and Force Planning Faculty, National Security Decision Making Department, Naval War College, pp. 18-33.

[270] Glenn A. Kent, 'Concepts of Operations: A More Coherent Framework for Defense Planning,' *Rand Note* N-2026-AF (Sandta Monica: RAND, 1983), p. 5. See also Glenn A. Kent, *A Framework for Defense Planning* (Santa Monica: RAND, 1989).

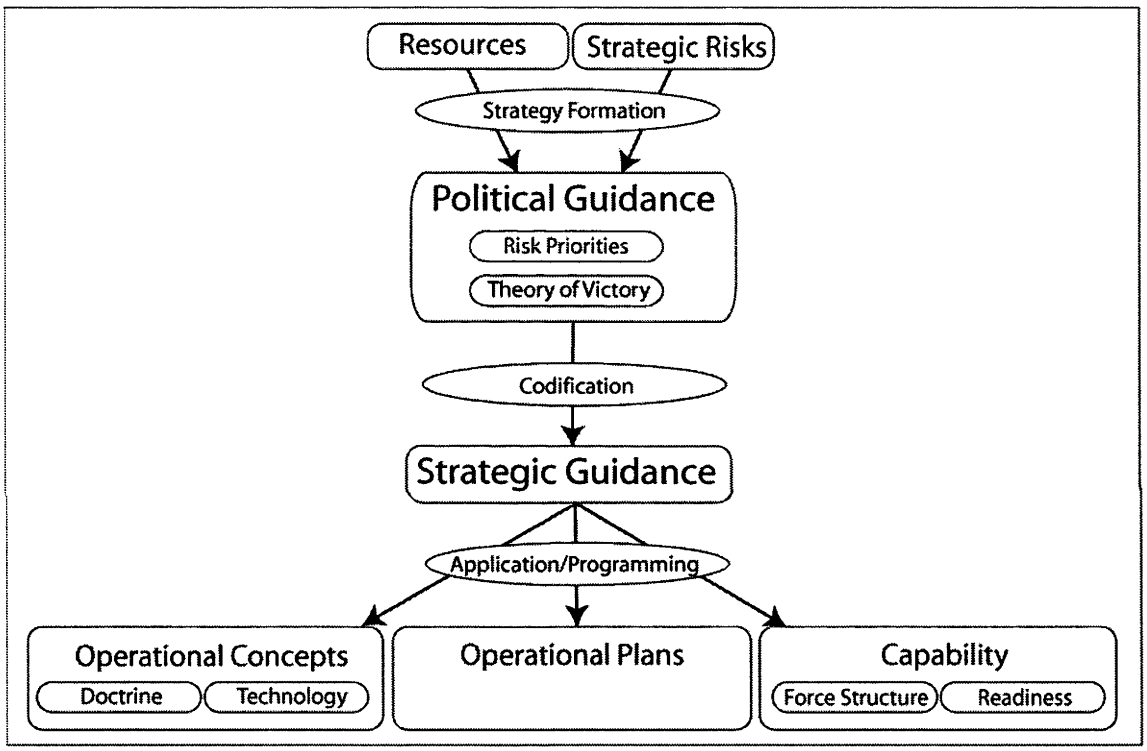
[271] Philip J. Romero, *A New Approach for the Design and Evaluation of Land Defense Concepts* (Santa Monica: RAND, 1991), pp. 8-9.

joint concepts, top-down decisionmaking, consistent with political guidance, is essential.[272]

Doctrine, defined as "[f]undamental principles by which the military forces or elements thereof guide their actions in support of national objectives,"[273] is part of operational concepts but can also be drafted with only implicit reference to (existing) equipment.[274] It, too requires a significant degree of top-down guidance as

> a bottom-up approach to the development of joint doctrine can result in nothing more than an imperfect synthesis of the disparate doctrinal bents of the services. A top-down approach, on the other hand, would set forth requisite unifying concepts at the outset.[275]

FIGURE 14: POLITICAL AND STRATEGIC GUIDANCE



Political guidance alone is too broad to directly derive more detailed decisions about doctrine, technology, force structure, and other issues relating to the lower ends of the strategic pyramid. Decisions in these areas will always be taken, since it is the job of defence bureaucracies to spend Research and Development (R&D) and procurement budgets, of military forces to train, and of operational commanders to plan for all kinds

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[272] John Birkler, C. Richard Neu, and Glenn Kent, *Gaining New Military Capability: An Experiment in Concept Development* (Santa Monica: RAND, 1998), pp. 3-21.

[273] Joint Chiefs of Staff, *Department of Defense Dictionary of Military and Associated Terms* (Washington D.C.: Department of Defense, amended through 31 August 2005), p. 168.

[274] The term doctrine is thus used in a more restricted sense than that of Posen, whose definition encompasses operational concepts as well as the theory of victory as far as it relates directly to the employment of military force. See Posen, *The Sources of Military Doctrine.*

[275] Douglas C. Lovelace and Thomas-Durrell Young, *Strategic Plans, Joint Doctrine and Antipodean Insights* (Carlisle: Strategic Studies Institute, U.S. Army War College, 1995), p. 10.

of eventualities. There is, however, a need for a comprehensive and coherent *plan* that ensures that these detailed decisions do not conflict with each other, and that they contribute coherently to the execution of the theory of victory. As discussed in Section 2.1.2, in machine organizations like defence organizations such a plan must be produced through the formalized, analytical activity of planning or strategic programming—a fundamentally different process from the development of a theory of victory, although both steps are often not conceptually distinguished.[276]

In order to execute the political guidance, it first needs to be transformed into a form that can be used to control the behemoth that a modern defence bureaucracy is. Strategic programming requires detailed methodologies, defined analytical categories, procedures and decision criteria, which are not directly part of political guidance as defined above. The transformation of political guidance into what might best be called strategic guidance is the codification mentioned in Figure 1 (See Figure 14). Strategic guidance must provide the conceptual nexus of operational concepts, procurement and contingency planning, and include a definite statement of strategic priorities.[277] Successful codification is critical for the overall implementation of strategic guidance, but it is far from easy. Mintzberg warns that

> Obviously this is not mechanical task, but one that can require a good deal of interpretation. The codification of strategy can cause all kinds of problems if done poorly or inappropriately—or prematurely. Perhaps the greatest danger, besides premature closure, is what can be lost in articulation—nuance, subtlety, qualification. Converting from general thoughts to specific directives is much like going from broad goals to precise objectives, or from soft data to hard: something is inevitably lost in the translation.[278]

Nevertheless, codification is essential as strategic guidance is the means to control the decisions coming out of strategic programming, which would otherwise be taken without a coherent and consistent consideration of the national objectives. Codification is thus pivotal to ensure the success of the overall effort, which would otherwise be torn apart between ineffectual political guidance at the top and a disoriented bureaucracy at the bottom. It is this level of codification that the discussion of defence planning in this thesis will focus on. The remaining part of this and the following chapter will demonstrate that a view of defence planning as a risk management process is well suited to that task.

4.2.2 Information and Uncertainty in Defence Planning

Defence planning inevitably involves making detailed decisions (on the lower level of Figure 14), such as on the number and specifications of new platforms and weapons systems that are to be acquired, on states of readiness or peacetime stocks of spares and consumables, and the content of training manuals and doctrine. These decisions should be derived from political guidance in its codified form, strategic guidance, which forms

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[276] See, for example, Liotta and Lloyd, 'From Here to There.' However, they mention both 'strategists' and 'force planners'.

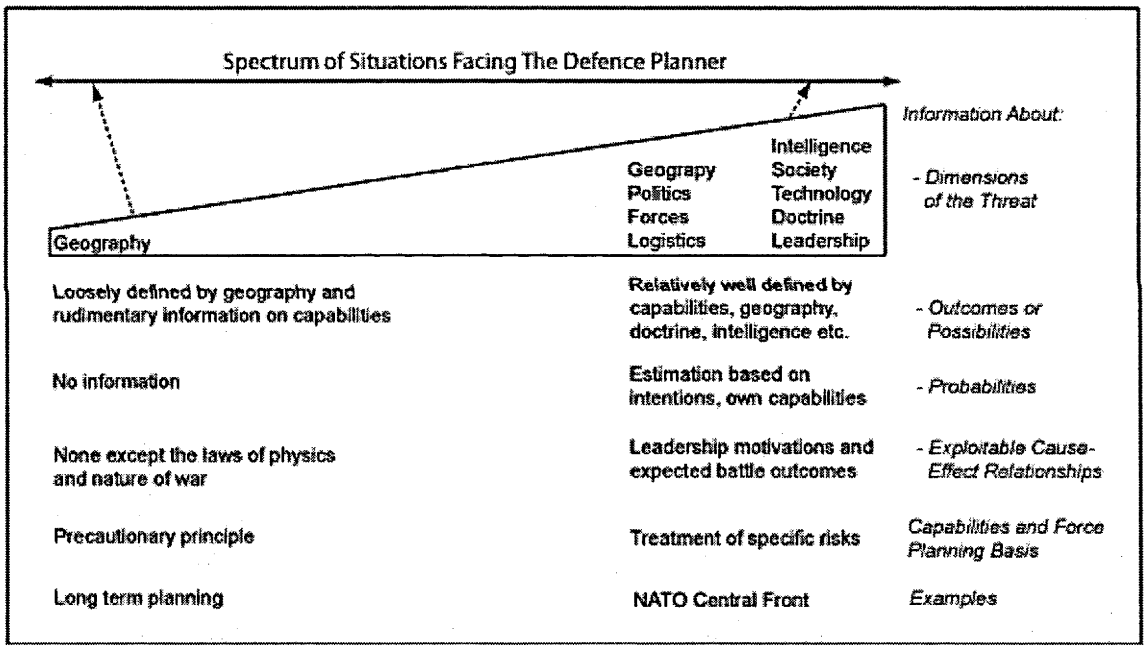
[277] Lovelace and Young call refer to strategic guidance as 'strategic plans'. Lovelace and Young, *U.S. Department of Defense Strategic Planning: The Missing Nexus*, esp. pp. 5, 9, 19-20.

[278] Mintzberg, *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners*, p. 338.

a unified conceptual basis for the development of capability, concepts and operational plans. However, both parts of political guidance—the pattern of strategic risk, and the theory of victory—are affected by all the uncertainties that affect strategy at large, and future requirements[279] are therefore, at least in principle, of a stochastic nature. But since it is impossible to buy a stochastic number of tanks, defence planning is always a risk management problem, and the strategic effectiveness of any defence planning process is inevitably subject to *incertitude*.

The dimensions of a threat to national security by state or non-state actors are those of strategy.[280] The more is known about these dimensions, both regarding the enemy and one's own nation, the better it is possible to assess the threat, and the lower will be the epistemic uncertainty affecting the certainty of assessment of the risk that is associated with it. Unfortunately, the information that is available on the identity of future enemies, i.e. the volatility of the international system, and the information that is available on enemies themselves can in principle vary from near-certainty and intimate familiarity to near-*ignorance* (Figure 15).

FIGURE 15: AVAILABLE INFORMATION AND RISK REDUCTION



At one extreme, the identity of enemies is well known and the threat is well understood in terms of all those dimensions of strategy that can be known in advance—such as society, culture, politics, ethics, economics and logistics, organization, military administration, the quality of intelligence, strategic theory and doctrine, technology, and geography. Based on the information regarding capabilities, terrain, doctrine and extent of available intelligence, it is possible to define possibilities or outcomes with a relatively high certainty of assessment, as far as operational art allows. Based on the information regarding leadership intentions, cultures, society and one's own capabilities

[279] Kugler highlights that requirements are always and inevitably a case of judging risks, not of applying simple formulas. Kugler, *Policy Analysis in National Security Affairs: New Methods For a New Era*, p. 228.

[280] See Section 2.1.3.

(which the enemy has to take into account), it is also possible to define respective probabilities with a relatively high certainty of assessment. Each side's leadership motivations and value structures, and the expected battle outcomes for various scenarios, are thus reasonably well known and form cause-effect relationships in the strategic pyramid that can be used to identify specific risks and to develop specific countermeasures. In the extreme, the uncertainties involved are reduced to those relating to aleatory processes and human free will, i.e. genuine mysteries and not secrets in the intelligence jargon.[281] Since risks are well defined in this situation and the cause-effect relationships that are necessary to form a theory of victory known, as far as that is possible *ex-ante*, defence planning and strategy can take the form of proper risk treatment. Deterrence threats, for example, take advantage of the known leadership motivations to reduce the probability of specific risks.[282] Decisions on force structure, doctrine, force dislocation and battlefield terrain preparation can reduce the consequences of risks by making the outcome of a specific operation more favourable, or reduce the likelihood of a specific way of attack by the enemy. NATO's defence of the Central Front is an illustrative example for this situation.

At the other extreme, the information about actual or possible enemies is more or less limited to that of the 'inescapable geography.'[283] Possibilities are thus very wide, and only loosely defined by geography. Probabilities are unknown, since information on the enemy's leadership intentions is not available—for example, since the risk lies years ahead in the future. When neither intentions nor capabilities are known, it is not possible to predict cause-effect relationships beyond the laws of physics in the context of geography (since the enemy has to project kinetic or electromagnetic energy), and the basic nature of war as a contest between two wills. It is thus not possible to assess risks with any degree of certainty, nor is it possible to form a theory of victory in advance. The information that serves as the 'input' to the planning process is less than that required for the 'output' decisions—one might say that in mathematical terms, the defence planning problem is highly underdetermined. In this situation, the precautionary principle applies also in defence planning and it becomes necessary to plan on the basis of illustrative rather than predictive scenarios. Planning over long time horizons is an example that lies close to this end of the knowledge spectrum, at which the results of defence planning—though not the process itself—necessarily lack the rigour that can be applied at the other extreme.

Since information on threats can fall anywhere between near-perfect knowledge and full *ignorance*, it is important for policymakers to be aware of the uncertainty associated with a particular risk in order to strike a balance between risk treatment—as far as possible—and precaution. A framework of defence planning as a risk management process that allows that balance to be struck will be developed in the remaining sections of this Chapter. Chapter 5 will then demonstrate the difference between risk treatment and precaution in the context of four ideal defence planning concepts.

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[281] Berkowitz and Goodman, *Strategic Intelligence for American National Security*, pp. 85-109.

[282] For a good overview on the information required for a credible deterrence strategy, see Payne, *The Fallacies of Cold War Deterrence and a New Direction.*

[283] Colin S. Gray, 'Inescapable Geography', in *Geopolitics: Geography and Strategy*, eds. Colin S. Gray and Geoffrey Sloan (London: Frank Cass, 1999), pp. 161-177.

4.2.3 The Defence Planning Process as Risk Management

A defence planning process based on risk management must be compatible with the bureaucratic environment in which it is to operate. However, this thesis will not explicitly assign responsibilities or design specific procedures—they would largely have to be specific to each country, given the vastly different national systems. But it will consider that the process must involve long time frames to balance risk, yet avoid locking decisionmakers into long-range plans that become irrelevant over time. The process must be able to provide decisionmakers with a basis for present choices,[284] be regularly updated and reiterated, and set the direct framework for balancing requirements and resources over time, between missions and services. At the same time, the process must result in risk treatment programmes that link operational concepts, planning and the development of capabilities with each other, and with political guidance.

At this stage, it is now possible to develop a framework of defence planning as risk management, as summarized in Figure 16 (which foreshadows several issues that will be introduced in detail later). Overall, the process consists of three separate and distinct phases: The identification and characterisation of strategic risks, the definition of requirements to treat these risks, and the development of capability and force structure concepts that can fulfil these requirements.[285]

Section 3.3.1 showed that defence planning can be seen as the treatment of strategic risk. Defence planning concepts and the forces that are created and maintained in accordance with them are logically reactions to risk patterns that confront decisionmakers. Differences in actual or proposed defence planning concepts have to be seen in conjunction with differences in the risk pattern they are designed to treat. Indeed, a main point of contention in strategic discussions is often less the correct response to a risk than what the main risk is, even if this point is hidden behind contentions around the merits of different strategies or force structures. By separating the identification and characterisation of strategic risk from its treatment, the structure of the problem thus becomes much clearer. However, both aspects of the problem are affected by uncertainties:

> On the one hand the policymaker can never be certain which bets to cover with military preparation. After all, the future is unknowable. On the other hand, the defense planner can never be certain just how much strategic effectiveness his chosen military forces can generate in support of policy choices.[286]

Both the first and the third stage thus involve iterative processes to deal with the assessment of uncertainties particular to their respective tasks. They can involve the use of distinct methods, such as assumption based planning or simulations and experimentation, which will be outlined in the following two sections. Both stages are

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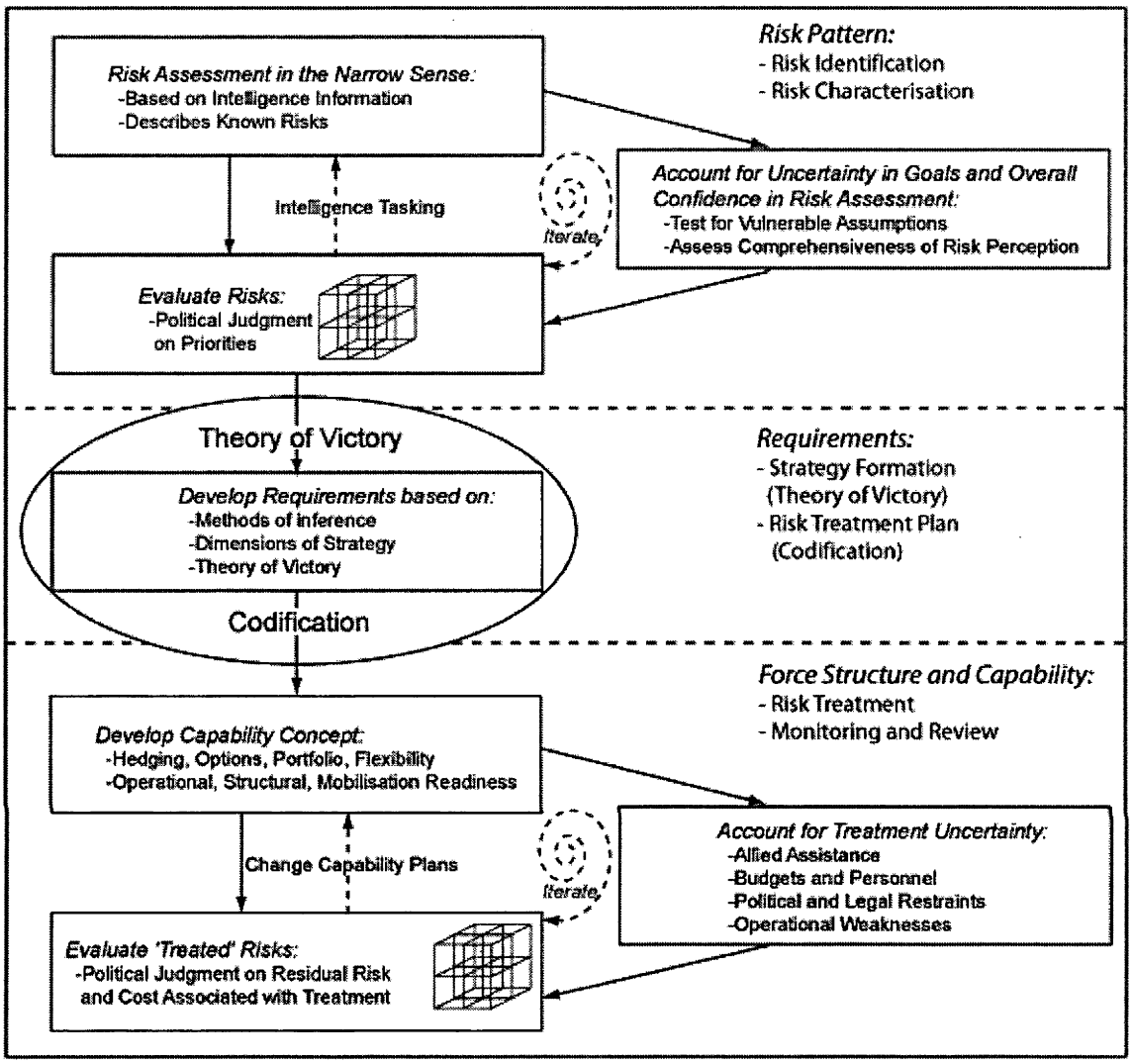
[284] Perry M. Smith, 'Long-Range Planning: A National Necessity,' in *Creating Strategic Vision: Long-Range Planning for National Security*, Perry M. Smith, Jerrold P. Allen, John H. Steward and Douglas Whitehouse (Washington D.C.: National Defense University, 1987), pp. 3-22.

[285] This sequence of defining risks, deriving requirements and structuring forces is similar to that in John G. McGinn, Gregory F. Treverton, Jeffrey A. Isaacson, David C. Gompert, and M. Elaine Bunn, *A Framework for Strategy Development* (Santa Monica: RAND, 2002).

[286] Gray, *Weapons Don't Make War*, pp. 71-72.

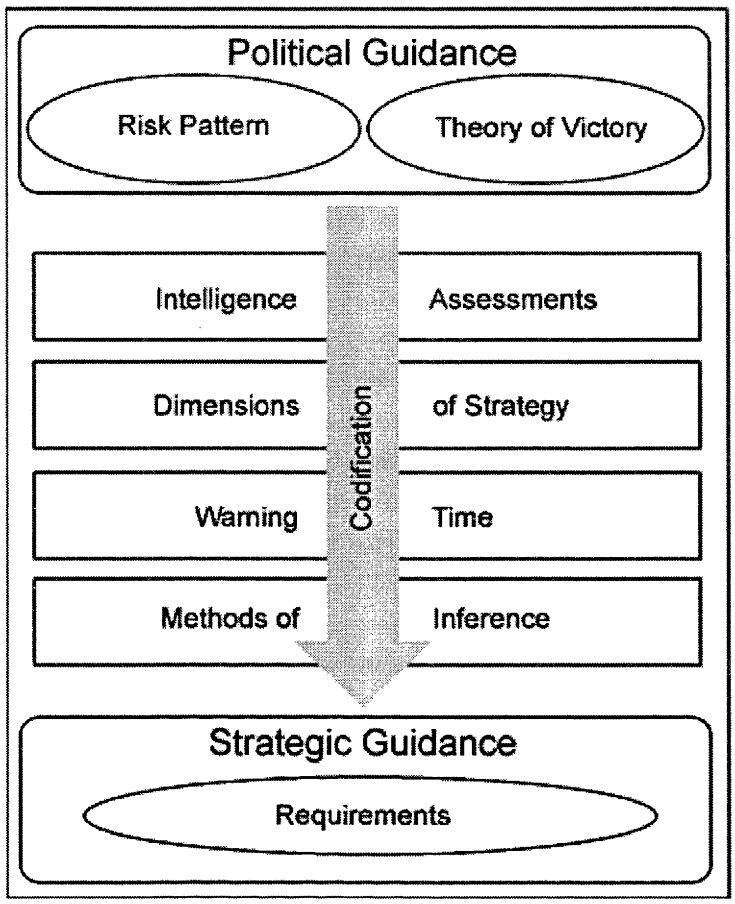
linked by the two elements of political guidance: The theory of victory and the evaluation of strategic risk.

FIGURE 16: DEFENCE PLANNING AS A RISK MANAGEMENT PROCESS



A theory of victory is created in a process of strategy formation, for which it is neither possible nor helpful to define prescriptive steps. In this framework, it is equivalent to the choice of a way to treat strategic risk, as the theory of victory explains how the cause-effect relationships of the strategic pyramid will be used to reduce the risk pattern. In general, the generation and choice of ways to treat risks is a creative step that, like strategy formation and for the same reasons, receives scant attention in the literature on civilian risk management processes. Section 2.1.5, however, showed that any strategy as a course of action is only partly deliberate, and partly emergent during the execution (comprising of codification and implementation). Strategy formation, which leads to a theory of victory, and codification of political guidance are thus distinct, yet inseparable. The purpose of defence planning can be seen as to contribute to the execution of the theory of victory under uncertainty, even if the main parameters of that theory are laid down in the strategy formation stage.

FIGURE 17: CODIFICATION AND REQUIREMENTS



The codification of political into strategic guidance thus transforms a general theory of victory and risk pattern into a detailed risk treatment plan or programme. Strategic guidance defines the requirements that capability concepts and force structures need to fulfil if they are to treat the strategic risk pattern as desired by the decisionmakers. Figure 17 gives a summary of four main factors that influence this process of codification, and which relate to the enemy, one's own forces, time, and logical inference, respectively. Since these either already have been discussed in detail above, or will be below, they are only briefly mentioned here:

- *Intelligence Assessments* of the risks along all relevant dimensions, which information can sometimes be very specific and reliable, sometimes vague and uncertain, but always relates to the possible challenges that defence planning needs to prepare for.

- *Dimensions of Strategy* as they relate to one's own side, including force structure and capabilities, society, ethics and legal restrictions, and, most importantly, geography, which influence and restrict the way in which these challenges could be met.

- Judgments regarding the length of, and confidence placed in, available *Warning Time* (from hours in some cases to decades in others), which can serve to 'discount' future requirements.

- *Inferential Methods* such as deduction,* induction* or abduction*, which allow drawing conclusions of different nature and reliability.

The evaluation of strategic risk provides a second linkage between the first and third stages of the process. A reduction of all relevant dimensions of different risks into one comparable metric is only possible by using (political) judgment about the importance of goals under threat, the tolerance for risk, and the acceptability of costs. It must also take into account the confidence that can be placed into warning, and be based on an assessment of what might be unknown as much as on what is known, in order to deal with the possibility of strategic surprise. All of this applies to the evaluation of strategic risks on their own, as well as their evaluation in conjunction with the cost of the risk treatment.

The defence planning process must thus be able to deal with and make judgments on risks of vastly different qualities. The previous section showed that while some risks might at the limit be described in terms of a statistical uncertainty, in other situations the certainty of assessment of the likelihood or even the consequences can be close to negligible. Section 4.1.3 discussed how risks of such different qualities can call for risk management processes of different natures, complex risks requiring extended assessments, for example, and uncertain risks demanding precautionary appraisals. Yet while processes can to some degree be tailored to specific problems in the very structured and focused civilian areas of the protection of consumers or the environment, defence planning has to constantly deal with a range of considerably different risks at the same time.

If risks are sufficiently specific, the theory of victory can be fully developed in advance, treat each risk directly, and codification should be relatively straightforward. If certainties of assessment are low, the theory of victory can only aim at providing the forces and capabilities that are deemed sufficient or most appropriate to support a more detailed, specific theory that would be developed once risks become clearer, or a particular risk materializes. Codification of the general idea that the theory of victory is at that stage is thus more difficult. In either case, defence planning as risk management deals with the testing of assumed future cause-effect relationships. Risk treatment programmes in the form of capability and force structure concepts are by nature hypothesis derived from these. Any risk treatment or defence planning programme thus needs to be reviewed in the light of new evidence. But, again, there is also a need to specifically assess the confidence that decisionmakers have in their ability to treat a given risk, independent of the nature and quality of that risk itself. In order to do so, the process has to highlight the different qualities of risks under consideration, and at the same time allow for considerable judgment and discretion on the part of decisionmakers in terms of the design of the risk management process and programme.

This section has addressed the framework of Figure 16 in terms of *what* tasks are required to treat strategic risk. The following chapter will outline several ideal methods of implementing the framework, all of which show configurational fit between the risk pattern, the methods used to define requirements, and the treatment of strategic risk.[287]

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[287] Paul K. Davis and Zalmay M. Khalilzad, *A Composite Approach to Air Force Planning* (Santa Monica: RAND, 1996) takes a similar approach, but in the specific context of the lead-up to the 1997 *QDR*. Therefore, they do not identify the extent of uncertainty facing the decisionmaker as a central element in the choice of methods (see p. 39).

These ideal methods thus address the question of *how* said tasks are to be achieved, in the context of different risk patterns facing the decisionmaker. Before moving on, however, it is helpful to discuss the relationship of a number of popular analytical methods to the framework outlined above.

4.2.4 Assessing and Evaluating Risk Patterns

This section will thus discuss analytical methods suitable for use in the top third of the framework of Figure 16. Strategic risks are identified and characterized in a process of intertwined assessment and evaluation. Intelligence collection agencies, analysts and political decisionmakers are the main participants in this stage, which results in a risk pattern that is part of political guidance and the basis for subsequent steps. As the definition of this risk pattern is a process that does not directly relate to the planning of military capability, pertinent issues will be highlighted in this section but subsequent chapters will regard risk patterns as given, and not consider the exact process of how they are developed.

The process begins with an assessment of the available intelligence information (or 'known knowns') regarding threats to national political goals. The extent to which such information is available will lie somewhere in the spectrum discussed in Figure 15. It can be assessed either directly, or in the form of analysis based on it, such as typing of states and situations, alternative futures or trend analysis.[288] The aim of the analysis is to identify future cause-effect relationships, based on intentions, capabilities and the dimensions of strategy, that permit an assessment of the consequences and likelihood of the associated risks. Since all relevant information is never available, this step will be associated with (sometimes considerable) uncertainty that can relate to the absence of data, as well as to the way in which it should be interpreted. If it is possible to identify at least some 'known unknown' pieces of information that, if they could be obtained, might make it possible to assess risks with a higher certainty of assessment, intelligence tasking orders can be adjusted to provide new information. On the basis of 'known knowns' and 'known unknowns', it is then possible to describe strategic risks along various dimensions, such as their likelihood, consequences, certainty of assessments, and geographical distribution. However, any uncertainty affecting the information about risks needs to be conveyed to the political decisionmakers, who have to be able to take it into account when making decisions regarding priorities based on their risk preference and, if appropriate, on the basis of the precautionary principle.[289]

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[288] Knorr and Morgenstern, 'Political Conjecture in Military Planning,' pp. 22-35.

[289] US NIEs on the Soviet Union in the 1950s and 1960s were plagued by insufficient attention to this point, for example. Behind the estimated ranges for the predicted numbers of bombers, missiles and other Soviet equipment given in the NIEs stood several predictions, usually also in the form of ranges, that were made by individual intelligence agencies. In both periods, some agencies (especially the Army and Navy in the late 1950s and early 1960s, and the Air Force during the late 1960s and early 1970s) correctly predicted the Soviet deployment, but these estimates were filtered out in the course of the drafting of the NIEs. The ranges in the final documents tended to reflect median positions, and often lay between the highest point of the lowest range and the lowest point of the highest range (Berkowitz and Goodman, *Strategic Intelligence for American National Security*, esp. pp. 125-131.). NIEs of this period thus did include epistemic uncertainty in the form of a range prediction, but did not inform the policymakers of the disagreement between the agencies regarding the correct model for prediction. The CIA's assessment thus failed the principal rule of dealing with uncertainty: "[N]o matter what tool or set of assumptions an analyst chooses [in dealing with uncertainty] to build solid judgments, it must be transparent to the policy consumer. If it is not, a decision leading to disastrous consequences or enormous waste may be taken

Since they are derived from purposefully collected intelligence information, risks considered at this stage will usually concern 'known enemies' in the strategic risk cube in Figure 9.[290] In a second step, this list then has to be complemented and refined to take account of the confidence that is placed in the comprehensiveness of the list assembled in the first step. First, since political goals represent the vulnerability that makes threats relevant, possible changes to these goals must have an influence on the relevance of strategic risks for the decisionmakers. The national interests of most countries, especially those for which they are willing to fight, are generally quite enduring. Nevertheless, they are subject to change and have to be operationalised through foreign policies over which there is often much less agreement than over the overall interest itself (see Section 3.3.1). Governments may of course be reluctant to take steps that facilitate actions that they themselves oppose or deem unnecessary, but this does not invalidate the reasoning behind this argument from a defence planner's point of view.

Second, the overall confidence in the risk assessments based on intelligence information needs to be evaluated. 'Known knowns' and 'known unknowns' are logically complemented by 'unknown unknowns', the equivalent of situations of *ignorance*. While the analysis of intelligence information might provide a *coherent* picture of future risks, it does not logically follow from this that the picture needs to be *comprehensive* at the same time. In order to arrive at a full evaluation of future risks, a judgment has to be made as to the importance of prevailing *ignorance*, the importance of risks from unknown or unexpected enemies, or unknown or unexpected theories of victory. Such an inquiry is qualitatively different from the analysis of intelligence information itself, since the object of analysis is one's own conception of the future, rather than any specific other country or organization.[291]

There are several analytical techniques that can be used to assist in this step. The best known of these is probably 'Assumption-Based Planning' (ABP), which was developed by RAND after the end of the Cold War, in order to deal with a situation in which only low confidence could be placed in the extrapolation of existing trends.[292] Its creator

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because the consumer misunderstood or misinterpreted what was produced." (Stéphane Lefebvre, 'A Look at Intelligence Analysis,' *International Journal of Intelligence and Counterintelligence*, vol. 17, no. 2 (Summer 2004), p. 248.) The NIE on Soviet objectives in 1977 therefore included two lines of argument, and was "intended to help the reader understand the argument, rather than to resolve it." (George Bush, *Memorandum for Recipients of NIE 11-4-77, "Soviet Strategic Objectives"*, 18 January 1977, reproduced in Steury, ed., *Intentions and Capabilities: Estimates on Soviet Strategic Forces, 1950-1983*, p. 391.)

[290] As mentioned in Section 3.3.3, the limitation to three risk dimensions (Time, Strategic Pyramid and Enemies) of two categories each (Present and Future and Known or Expected and Unknown or Unexpected) is sufficient as an example and for the discussion the next chapter. For any application in real life, it would have to be extended to include other dimensions—such as the nature of the enemy's strategy (maritime vs. continental, conventional vs. irregular) and geographic location—and more categories within each dimension.

[291] For a criticism of this point on ideological as much as practical grounds, see Maria Ryan, 'Filling in the 'Unknowns': Hypothesis-Based Intelligence and the Rumsfeld Commission,' *Intelligence and National Security*, vol. 21, no. 2 (April 2006), pp. 286-315.

[292] This summary draws on James A. Dewar, Carl H. Builder, William M. Hix, and Morlie H. Levin, *Assumption-Based Planning: A Planning Tool for Very Uncertain Times* (Santa Monica: RAND, 1993).

describes it as a 'post-planning tool' to evaluate existing plans, but it can be applied to test the reliability and comprehensiveness of any prediction. The basic idea of ABP is to first identify assumptions that have been made in drawing up the system of future cause-effect relationships on which the prediction is based, especially those assumptions that are critical for the outcome and vulnerable to violation at the same time. In a second step, the certitude with which these assessments can be made is then assessed, and signpost events whose occurrence would signal a danger of assumptions breaking down are defined.[293] Signposts are thus used to transform a situation of *ignorance* about a future development into one of *indeterminacy* or even *risk*, by providing *strategic* warning about a change in the risk pattern itself.[294] Linking assumption failures with signpost events is very similar to the use of classic intelligence indicators and the concept of warning-reaction times.[295] However, there is an important difference since indicators and warning-times are interpreted within, and compatible with, an existing cause-effect system. They serve to monitor risks and to provide *tactical* warning to predict harmful events.

In order to increase the rigor and transparency of its products, the Central Intelligence Agency (CIA) introduced a similar methodology under the term 'linchpin analysis' in the 1990s. Assessments were to be constructed along a number of steps that should convey assumptions and uncertainties to the intelligence user: First, the main uncertain factors or key variables (drivers) that will determine an outcome have to be identified. Second, working assumptions (or linchpin premises) about these key drivers are made. Third, evidence to support these assumptions is presented. Fourth, indicators or signposts that would render the linchpin premises unreliable are defined. Fifth, possible triggers that could lead to a violation of the premises are addressed.[296]

In a third method called 'Uncertainty-Sensitive Planning', Paul K. Davis proposes to first develop a 'core' environment without surprises. Second, uncertainties are identified that are associated with 'branches', which lead to different paths whose possible outcomes are, however, known in advance. Third, 'shocks'—events whose realization would come fully unexpected, even if they were known to be theoretical possibilities in advance—are enumerated. These three categories correspond to the distinction between *risks* (in the core environment), *indeterminacy* (of branches) and

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See also James A. Dewar, *Assumption-Based Planning: A Tool for Reducing Avoidable Surprises* (Cambridge: Cambridge University Press, 2002).

[293] The internal stability of the regime of the Shah was, for example, an assumption that was central to the US threat perception in the Persian Gulf, and should have been monitored in order to reduce the highly consequential surprise that occurred in 1978. Daugherty, 'Behind the Intelligence Failure in Iran.'

[294] There is also a superficial similarity between the identification of vulnerable assumptions and the definition of signposts in Assumption-based Planning (ABP) on the one hand, and the 'Analysis of Competing Hypothesis' in the area of intelligence analysis methodologies. However, while both are used to identify and assess implicit assumptions, the former does so with regard to future events that have not happened yet, while the latter deals with the interpretation of available information about the past. See Heuer, *The Psychology of Intelligence Analysis*.

[295] See Diane M. Ramsey and Mark S. Boerner, 'A Study in Indications Methodology,' *Studies in Intelligence*, vol. 7, no. 3 (Summer 1963), pp. 75-94.

[296] Jack Davis, *Changes in Analytic Tradecraft in CIA's Directorate of Intelligence* (Langley: Product Evaluation Staff/Directorate of Intelligence, Central Intelligence Agency, April 1995), p.8 .Quoted in George, 'Fixing the Problem of Analytical Mind-Sets: Alternative Analysis,' p. 391.)

ignorance (of shocks) in Figure 5, but Davis admits that this methodology tends to lead to lists that are "neither logically 'tight' nor comprehensive."[297]

All of these methodologies depend on the user's ability to identify important implicit assumptions and, in the case of ABP and linchpin analysis, on the availability of observable and unequivocal signposts. They are therefore clearly not a panacea for the problem of surprise.[298] Nevertheless, the basic idea—what James A. Dewar calls 'Assumption-based Thinking'[299]—that stands behind ABP and linchpin analysis can provide a coherent way of complementing an assessment of known risks, derived from intelligence information, with a list of risks defined on the basis of 'known unknown' pieces of information.[300] It will, of course, not be possible to *assess* these risks in the categories of unknown or unexpected enemies and theories of victory in the strategic risk cube in the same detail as it is possible to assess intelligence information itself. But it is nevertheless necessary to *evaluate* their importance on the basis of available information, in order to make an informed judgment about the comprehensiveness of the risk perception on which the treatment of strategic risk will be based.

Risks that have been identified on the basis of intelligence information, and those derived from an analysis of the comprehensiveness and confidence in that information, then have to be combined into a comprehensive and coherent risk pattern that can be the basis for the development of defence planning concepts and capabilities to treat strategic risk. As discussed in Section 3.3.3, this step has to be based on an evaluation of strategic risks since they ultimately threaten political objectives, and the reduction of the various dimensions of risk into one order of overall importance requires political judgment. It is possible and necessary in this evaluation process to take account of different dimensions and qualities of risks, and to iterate the process for complex risks by, for example, adjusting intelligence tasking orders to gain more information. Potentially grave risks that are only known with a very low certainty of assessment can be regarded as important if the decisionmakers decide to act on the basis of the precautionary principle. Risk-averse decisionmakers will often accord a relatively high priority to risks that are very unlikely but have grave consequences. It is crucial to distinguish this third step of evaluation from the preceding steps of assessing intelligence information, and assessing the comprehensiveness of that information. Although the characteristics of strategic risks are important for the *way* in which they can be treated, the decision of *whether* they should be treated cannot be derived from an analysis of the data alone.

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[297] Paul K. Davis, 'Protecting the Great Transition,' in *New Challenges for Defense Planning: Rethinking How Much Is Enough*, ed. Paul K. Davis, p. 137.

[298] Antulio J. Echevarria, 'Tomorrow's Army: The Challenge of Nonlinear Change,' *Parameters*, vol. 28, no. 3 (Autumn 1998), pp. 85-98 discusses the limitations of ABP.

[299] Dewar, *Assumption-Based Planning: A Tool for Reducing Avoidable Surprises*, pp. 178-183.

[300] There are at least two additional methods, Alternative Futures and Gaming (see Davis and Khalilzad, *A Composite Approach to Air Force Planning,* pp. 19-23), that are not directly based on intelligence information at large but leave participating planners more scope for imagination. They can thus also be used to define risks that are abductively, not deductively defined (a distinction discussed in detail in Section 5.2.2 below).

4.2.5 Assessing and Evaluating Capability Concepts

As mentioned above, codification of political into strategic guidance is central to the argument herein and discussed in the following chapter. But once requirements for the risk treatment are defined, they have to be met in the bottom part the framework summarized in Figure 16 by capability and force structure concepts, which need to be regularly reviewed as to their fit with the evolving risk pattern. Again, a number of established applied methods are relevant to these processes. Their relationship with the framework will be discussed in this section, but which the following chapters will assume to the reader to be familiar with them.

Evaluating force structure concepts entails uncertainties of two different kinds: First, uncertainties regarding the risks to be treated, which range from unknown details such as technical parameters of enemy weapon systems, to *incertitude* at the level of the international system. These uncertainties enter the process through the way that requirements are defined, and the following chapter will develop an appropriate methodology through the use of a combination of hedges*, options*, portfolios* and flexibility*.

Second, the expected outcome of any military operation and of the direct or indirect strategic effect of military force is uncertain and should, therefore, best be described as a risk as well—there is always a risk of failure or high casualties.[301] The expected result of combat is a prediction that is based on assumptions regarding the cause-effect relationships of the strategic pyramid, assumptions that may or may not be valid. In an analysis of the uncertainty regarding the possible outcomes of conflict situations, it is therefore not only necessary to consider uncertainty within the model used to predict the result—such as through sensitivity analysis or parametric analysis—but also to question the underlying assumptions about the overall structure and applicability of the reasoning that supports it. Again, the information that is available to assess capabilities may be consistent but does not need to be comprehensive, especially once higher steps of the strategic pyramid, i.e. the influence of tactical or operational success on strategic effectiveness, are considered. This step is parallel to the assessment of the overall confidence in the threat assessment discussed above, and ABP or similar techniques can also be used here to uncover vulnerable and critical assumptions.[302]

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[301] See also the discussion of existing conceptions of strategic risk in Section 3.2.1 For (applied) discussions that go further than most in the consideration of both the need to define a range of scenarios and the uncertainty associated with the expected outcome, see Paul K. Davis, 'Institutionalizing Planning for Adaptiveness,' in *New Challenges for Defense Planning: Rethinking How Much Is Enough*, ed. Paul K. Davis, pp. 73-100; Paul K. Davis, 'Uncertainty-sensitive planning.'

[302] It is also worth recalling the complexity of the cause-effect relationships of the strategic pyramid discussed in the treatment of RMAs in Section 2.3.4 and the nature of strategic surprise as discussed in Section 3.3.2. For criticism of a whole range of assumptions that underlie current Western defence forces and defence planning, see for example: Stephen D. Wolthusen, 'Self-Inflicted Vulnerabilities,' *Naval War College Review*, vol. LVII, no. 3/4 (Summer/Autumn 2004), pp. 102-113 on the use of commercial IT technology in military systems; Michael I. Handel, 'Numbers Do Count: The Question of Quality versus Quantity,' in *The Strategic Imperative: New Policies for American Security*, ed. Huntington, pp. 193-228 on the use of reduced numbers of platforms of higher individual capability; Donald Chisholm, 'The Risk of Optimism in the Conduct of War,' *Parameters*, vol. XXXIII, no. 4 (Winter 2003-04), pp. 114-131 and Justin Kelly and David Kilcullen, 'Chaos versus Predictability,' *Australian Army Journal*, vol. II, no. 1 (Winter 2004), pp. 87-98 on Effects-based Operations; Harknett and JCISS Study Group, 'The Risks of a Networked Military' on relying on networked forces; John E. Peters, 'A Potential

In this context, it is important to understand the nature of the method that is used to assess the uncertainty of this second kind. These methods can include professional judgment, possibly through the use of Delphi techniques or similar methods to access expert knowledge.[303] They can also include an element of experimentation through exercises or games, or red-teaming.[304] Large scale, real-life test-runs of aspects of likely contingencies, as they were used by NATO during the Cold War, can both be educational for the participants and have a research purpose to discover yet unknown shortcomings. Smaller table-top games can be used to research strategic interactions,[305] while controlled physical experiments have a role in the development of new operational or tactical concepts and capabilities, and were used by various countries in the inter-war period with particular success.[306] Modelling and simulation of combat on computers is another method to assess a large number of scenarios at the same time.[307] However, it is important to remember that models can only rearrange and recalculate available information, and only in accordance with rules that have been set before by the authors of the model (although these rules can, of course, be varied, for example in parametric analysis). Models do not generate new data the way that experiments do, despite all the artificiality that also affects that latter methodology.[308] Much more than (good) experiments, good models are therefore subject to the danger of 'garbage in-garbage out' results, or, as Bracken and Shubik comment on the development of

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Vulnerability of Precision-Strike Warfare?, *Orbis,* vol. 48, no. 3 (Summer 2004), pp. 479-487 and Robert Mandel, 'The wartime utility of precision versus brute force in weaponry,' *Armed Forces and Society*, vol. 30, no. 2 (Winter 2004), pp. 171-201 on the reliance on precision guided munitions; and a whole library of literature on asymmetric warfare regarding possible enemy adaptations to Western (conventional) military supremacy.

[303] For a discussion of strategic judgment in defence decisionmaking, see Duggan, *Coup d'Oeil: Strategic Intuition in Army Planning.*

[304] See, for example, Defense Science Board, *The Role and Status of DoD Red Teaming Activities* (Washington D.C.: Department of Defense, 2003).

[305] For an interesting discussion of the lessons drawn from major historic tabletop exercises, see for example Robert H. Grave, 'Global War Game: Second Series, 1984–1988,' *Newport Paper*, no. 20 (Newport, RI: Naval War College, 2004). On the more recent famous 'Dark Winter' smallpox game, see Donald A. Hendersen, Thomas V. Inglesby, Jr. and Tara O'Toole, 'Shining Light on 'Dark Winter',' *Clinical Infectious Diseases,* vol.34, no. 1 (1 April 2002), pp. 972-983; Peter J. Roman, 'The Dark Winter of Biological Terrorism,' *Orbis,* vol. 46, no. 3 (Summer 2002), pp. 469-482. See also Thomas C. Schelling, 'The Role of War Games and Exercises,' in *Managing Nuclear Operations*, eds. Carter, Steinbruner, and Zraket, pp. 426-444; Stuart H. Starr, '"Good Games"', *Naval War College Review*, vol. LIV, no. 2 (Spring 2001), pp. 89-97 on NATO's Code of Best Practice for Wargaming; David Mussington, 'The "Day After" Methodology and National Security Analysis,' in *New Challenges & New Tools for Defense Decisionmaking*, eds. Johnson, Libicki and Treverton, pp. 323-338 on a table-top exercise methodology that emphasizes the identification of lessons learned.

[306] See for example Murray and Millet, eds., *Military Innovation in the Interwar Period*; Arthur J. Alexander, *The Linkage Between Technology, Doctrine, and Weapons Innovation: Experimentation for Use* (Santa Monica: RAND, 1981).

[307] For good overviews, see Paul K. Davis, 'Exploratory Analysis and Implications for Modeling,' in *New Challenges & New Tools for Defense Decisionmaking*, eds. Johnson, Libicki and Treverton, pp. 255-283; Paul K. Davis and Robert H. Anderson, *Improving the Composability of Department of Defense Models and Simulations* (Santa Monica: RAND, 2003).

[308] Committee on Risk Characterization, *Understanding Risk: Informing Decisions in a Democratic Society*, pp. 112-113.

strategic modelling in the last decades: "Modeling has become more complex, but thinking has not."[309]

Once a specific force structure has been tested regarding its estimated ability to reduce a specific risk pattern, the expected result has to be evaluated in light of the residual strategic risk and the cost associated with the risk treatment. Again, the political nature of war and the need to weigh political, financial, economic and human costs of various outcomes make it necessary to use political judgment. The difference between the various methods of assessing force structures discussed above is important here, since the confidence that can be placed in the predicted success of a risk treatment will be one of the dimensions that have to be considered. Philip Romero writes that

> Because we do not know—and cannot know, short of war (if then)—the "true" value of these variables [that will determine success in combat], it is necessary to evaluate concepts ... to determine how sensitive their estimated performance is to our assumptions. The preferred concepts should be those that are less sensitive and therefore more robust.[310]

At this stage, it is also necessary to take account of uncertainties and characteristics of the risk treatment programmes that are related to their sustainability in the domestic context: Some programmes will, for example, depend on the availability of financial resources in the future that do not seem assured, while others might carry risks since they could possibly conflict with political or legal limitations and obligations that have been placed upon the defence establishment. Also considered here should be the reliance on allied assistance that is assumed in a risk treatment programme. A decision about the confidence that can be placed in that assistance actually forthcoming is inherently political, since it will depend on the direction of the overall foreign policy of the country's leadership, which is a factor that lies outside the scope of defence planning itself.

If a strategic risk treatment programme is found to leave significant residual risks, it should then be changed and re-assessed again in an iterative process. Since defence planning is a continuous process, any programme that is accepted must always be continuously rolled over and updated. The notion of a 'final' force structure, although part of many force structure plans, is therefore only meaningful as a theoretical concept.

In summary, this chapter has discussed that risk management is similar to decision-making processes, and those oriented towards the generation of new knowledge. The management of complex risks can require interwoven analysis and evaluation. Risk treatment must take the dimensions of a risk into account, and can be done on the basis of the precautionary principle if uncertainty is dominant.

In defence planning, codification of political into strategic guidance is a pivotal step, which must accommodate risks whose understanding ranges from near-completeness, to near-ignorance. The defence planning process can thus be described as a three-stage risk management process: First, complex risks are assessed and evaluated; second, a

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[309] Paul Bracken and Martin Shubik, 'War Gaming in the Information Age,' *Naval War College Review*, vol. LIV, no. 2 (Spring 2001), p. 49. See this article for a critical overview on the modern history of wargaming and modeling.

[310] Romero, *A New Approach for the Design and Evaluation of Land Defense Concepts*, p. viii.

theory of victory to treat these risks is developed and codified into strategic guidance; and, third, force structure concepts to treat the risk pattern determined and evaluated in conjunction with the residual risk.

CHAPTER 5:

FOUR IDEAL DEFENCE PLANNING CONCEPTS

This chapter will discuss in further detail the codification of political into strategic guidance within the framework discussed in the previous chapter. Defence planning concepts to treat risk patterns consist of methods to determine requirements, as well as capability concepts to fulfil them. Basic issues regarding the former are outlined in the first part of this chapter, those relating to the latter in the second part. All parts of the process must, of course, be coherent with each other—inconsistencies here can be an important source of institutional risk. The last part will introduce four ideal defence planning concepts that show the required internal configurational fit.

5.1 Codification and Requirements

Once strategic risks have been assessed and evaluated, requirements for a risk treatment plan need to be defined. This involves the codification of political guidance into strategic guidance, which comprises the methodologies, analytical categories, procedures and decision criteria used to guide the defence bureaucracy (see Figure 17). As intelligence information and dimensions of strategy have already been discussed, this section introduces two additional aspects of codification, warning and action times and inferential methods, which directly relate to the accommodation of uncertainty.

5.1.1 Warning and Reaction Times

The treatment of a given risk pattern always combines specific requirements over time, which must be matched to the predicted amount of available resources over the same period. Defence planning can thus be seen as an economic problem of maximizing utility over time, which requires a way to discount both future risks and future capability. In the strategic context, the mechanism that can be used to deal both with the contingent nature of risk treatment, and to discount future risks and requirements, is that of warning and reaction times. Their interplay determines what strategic effect in the future can be expected from investment in capability today. However, the confidence that can be placed into this discounting method is affected by the adversarial nature of the interaction between both sides, as strategic advantage can be gained from surprising the enemy. The amount and reliability of information that is available on a risk pattern thus has direct implications for the reliability with which both the enemy's likely moves, and the steps that are necessary to counter them, can be assessed.

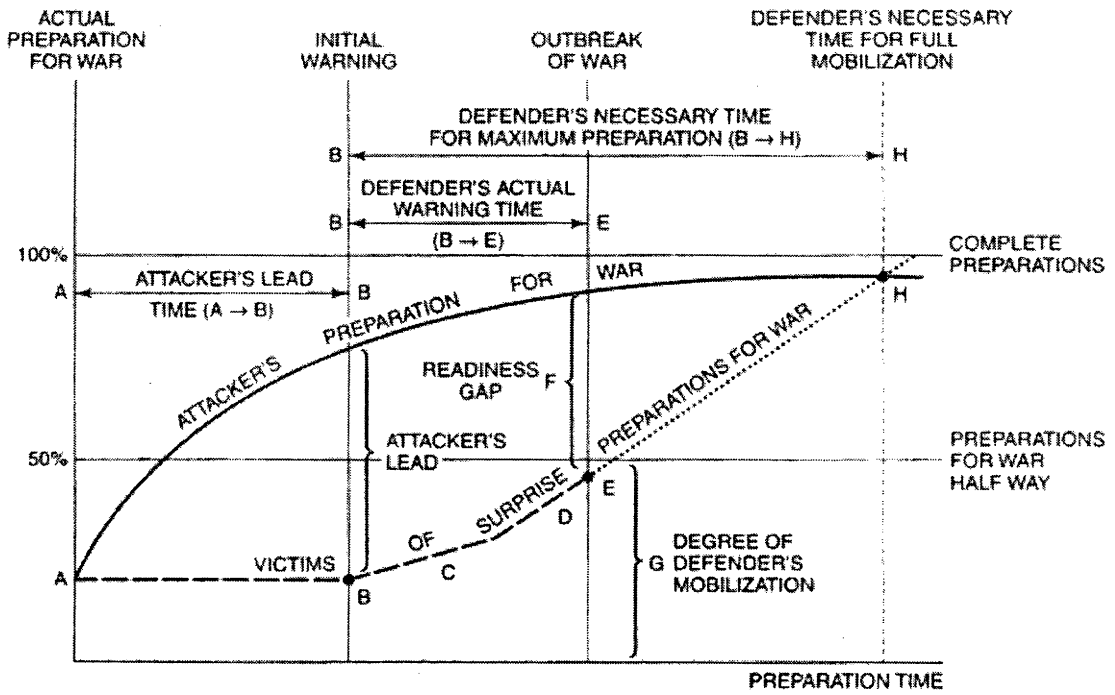
There is a qualitative difference between the prediction of events in tactical warning, and of risks in strategic warning.[311] Also, not all information is alike as a basis for or subject of warning. Klaus Knorr and Oskar Morgenstern write that

> We infer from experience the propositions that, among [events, predispositions and capabilities], the class of events is less conjecturable than the classes of predispositions and capabilities; and that, within the class of capabilities, tangibles are more

[311] See Section 3.3.2.

conjecturable than intangibles, and also more conjecturable than predispositions, which are also intangibles. Two supporting hypotheses are, first, that tangible objects are more easily observed (and often measurable) than are intangibles; and second, that events—in the genesis of which predispositions and capabilities play a part—are more unpredictably contingent than either predispositions or capabilities.[312]

FIGURE 18: WARNING AND REACTION TIMES



Notes:

A. Attacker starts preparations for war.
B. Defender issues initial warning, but is uncertain of the real probability of war.
C. Due to uncertainty the initial phase of preparation proceeds relatively slowly.
D. As the probability of war increases and becomes more certain the defender accelerates preparations.
E. War breaks out (e.g. surprise attack). Defender's preparations incomplete and lag behind the attacker.
F. The readiness gap favoring the attacker.
G. The degree of mobilization completed by the defenders at the time of attack (E).
H. At this point the defender may have reached his highest level of preparations. Line A ↔ B represents the *attacker's lead time*; line B ↔ E represents the *defender's actual warning time*; line B ↔ H represents the time the defender needs to complete his preparations. The greater is B ↔ H minus B ↔ E the more intense is the impact of the surprise attack.

Michael I. Handel, 'Intelligence and the Problem of Strategic Surprise,' in *Paradoxes of Strategic Intelligence*, eds. Richard K. Betts and Thomas G. Mahnken (London: Frank Cass, 2003), p. 7.

However, tactical warning (of events) and strategic warning (of capabilities or intentions) can both be analysed in terms of Figure 18, which summarizes the interaction over time that results from the collision of both side's actions and reactions

[312] Emphasis in original. Knorr and Morgenstern, 'Political Conjecture in Military Planning,' p. 20.

over timescales that can measure days or years.[313] There are three different timelines that need to be considered: First, the enemy's lead time between the initiation of a build-up or the development of hostile intentions, and the defender's decision to begin a reaction. Second, the defender's warning time between the initiation of that reaction, and the point at which the enemy will be able to draw most benefits from his lead (by initiating war on favourable terms, for example, or by exerting political and military pressure on the basis of his superiority). Third, the defender's reaction time that is required to neutralize the enemy's head start.

In very similar ways, the relative length of these three timelines is important in situations of *risk* and *indeterminacy*, in which the primary concern is tactical warning and the prediction of surprise attacks, and in situations of *ignorance*, in which they are applicable to the emergence of new threats and strategic warning. In both cases, the confidence with which short lead times for the enemy can be assumed reduces the premium on requirements to deal with unexpected developments. Tactical and strategic warning are both topics that are well covered in the literature, and the warning time in general depends on all the factors mentioned in the beginning of Section 3.3.2, such as noise in the intelligence picture, strategic assumptions or analytic mindsets. Unfortunately for those who find themselves in a situation in which they do not have much information or understanding of the threat environment that they face, one of the common themes throughout that literature is that it is important for successful warning, whether it is strategic or tactical, to have some idea of what to expect.[314]

In a situation of *risk*, threats are well defined and probabilities can be assigned to them. On the basis of this information, intelligence indicators can be specified to predict events. Tactical surprise is nevertheless generally possible, and the enemy's lead time can never be expected to be fully eliminated. It will, however, tend to be shorter, and more reliably so, since the amount of information available about the enemy's intentions, capabilities, worldview, culture and doctrine is relatively high. Also, the information that is available on the enemy in these situations gives reasonable certitude regarding way in which he might try to achieve surprise effect. It is, therefore, possible in these situations to define fairly precise and specific requirements for the defender's force structure that shorten the defence's reaction time or vulnerability to surprise, and thereby reduce temporary windows of vulnerability.[315]

In a situation of *indeterminacy*, sufficient information is available to define the specific kinds of existing and new threats, but there is no information as to their relative probability. If it applies to threats in the future, it would be reasonable to expect that strategic warning could be achieved with a high degree of reliability, as it would be possible to monitor the emergence of strategic risks (through changes in the likelihood of developments that are known to be possible). The warning times and associated enemy lead times that are expected for threats that could emerge thus provide a basis for planning defence reaction programmes (or rearmament programmes) that can be accomplished within the available defence reaction time. Measures that sufficiently

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[313] See also Bruce W. Bennett, 'Responding to Asymmetric Threats,' in *New Challenges & New Tools for Defense Decisionmaking*, eds. Johnson, Libicki and Treverton, pp. 45-47.

[314] Richard Brody, 'Warning and Response,' in *On Not Confusing Ourselves*, eds. Andrew W. Marshall, J.J. Martin, and Henry S. Rowen (Boulder, CO: Westview Press, 1991), pp. 94-113.

[315] Betts, *Surprise Attack: Lessons for Defense Planning*.

shorten the defence reaction time to deal with future risk are thus requirements that need to be fulfilled by the present force structure, beyond those necessary to deal with present risk.[316]

Indeterminacy can, however, also apply to present threats that are not well known in terms of the enemy's intentions, capabilities or theory of victory. It is then not possible to define the clear intelligence indicators for tactical warning, but the considerations regarding enemy lead time, warning time and reaction time still apply. The Commission to Assess the Ballistic Missile Threat to the United States ("Rumsfeld-Commission") discussed this problem in relation to the threat from rogue state ballistic missile programs. It concluded that:

> Deception and denial efforts are intense and often successful, and US collection and analysis assets are limited. Together they create a high risk of continued surprise. ... [T]he fact that there are delays in discovery of those activities provides a sharp warning that a great deal of activity goes undetected.[317]

The Commission thus thought that enemy lead times would be considerable, and that warning times might be too short to avoid serious disadvantages. It therefore concentrated on an analysis of the available information on rogue state missile programs in the context of an assessment of the technological challenges of missile development, the known history of trade in missile technology between rogue states, the scope of inputs that a country devotes to its programs, and its general level of technological expertise.[318] By taking account of the principal technological problems in building a missile and rogue state scientific and manufacturing capabilities, the commission estimated the time that a country needed to develop a missile capable of reaching the United States, even if a decision to do so was a 'known unknown' and had not been detected. Acknowledging that "[t]his approach requires that analysts extrapolate a program's scope, scale, pace and direction beyond what the hard evidence at hand unequivocally supports," the Commission insisted that

> When strategically significant programs were assessed by narrowly focusing on what is known, the assessments lagged the actual state of the programs by two to eight years and in some cases missed significant programs.[319]

Translated into a risk management context, the commission thus decided that action was required on the basis of the precautionary principle. In order to overcome the lack of precise information, its calculation of (potential) enemy lead-times defined a scenario that was not meant as a prediction or representation of known reality, but nevertheless allowed to define present requirements to address the risk. In general, the distinction

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[316] See the general discussion in Paul Dibb, *Planning a Defence Force Without a Threat* (Canberra: Strategic and Defence Studies Centre, Australian National University, 1996).

[317] Commission to Assess the Ballistic Missile Threat to the United States, *Executive Summary of the Report of the Commission to Assess the Ballistic Missile Threat to the United States*, 15 July 1998, <http://www.house.gov/hasc/testimony/105thcongress/BMThreat.htm> (7 May 2003).

[318] For an open source study with a similar methodology, see David R. Tanks, *Exploring U.S. Missile Defense Requirements in 2010: What are the Policy and Technology Challenges?* (Washington D.C.: Institute for Foreign Policy Analysis, 1997).

[319] Commission to Assess the Ballistic Missile Threat to the United States, *Executive Summary of the Report of the Commission to Assess the Ballistic Missile Threat to the United States.*

between short-, mid- and long term thus must not be taken to relate to the time that it takes the enemy, beginning in the present, to generate new threats. Instead, it is always the reaction time that is the relevant one for the definition of requirements, from the *decision to initiate a reaction* to the time of the enemy's greatest advantage.

5.1.2 Inferential Methods

The information regarding the risk pattern, the theory of victory, dimensions of strategy related to one's own side, and warning and reaction time considerations ultimately must be combined into one set of requirements to treat strategic risk. The logical basis of this codification are inferential methods, which generate statements regarding requirements even if the information on which they are based is incomplete. Knorr and Morgenstern use the term conjecture in this regard, and write that

> The claim of conjecture is more modest than the claim of prediction. Conjecture is reasoned inference from admittedly defective evidence. That is to say, to conjecture is to form an opinion or judgment on what is recognized as inadequate information. It is distinguished from tacit intuitive judgement by two essential elements: competent use of such evidence as there is, and the use of explicit reasoning. ... To sum up, conjecture about the future involves what the Germans call Vorausdenken (literally, "thinking ahead") rather than Voraussagen, which is prediction.[320]

In the late 19th and early 20th century, the American philosopher Charles S. Peirce wrote extensively on three different methods of inference or reasoning:[321] Deduction, induction and abduction.[322] In general, he writes, "The object of reasoning is to find out, from the consideration of what we already know, something else which we do not know."[323] All three methods of inference can best be discussed in terms of a *precondition*, a *rule* with an applicability that extends beyond this specific case, and the *result*. Deduction, induction and abduction are the logical relationships that infer the result, the rule or the precondition from the other two elements (see Figure 19).

Deduction uses a given rule or causal chain and a precondition to infer a result. If rule and precondition are true, the inferred result logically has to be true as well. Deduction is therefore the method of inference with the highest associated confidence and must be used if predictions are to be made. At the same time, it is purely analytical and does not generate truly new information.

Induction uses the known precondition and result to infer a rule, usually on the basis of a number of precondition-result pairs. The confidence placed in inductive reasoning cannot be as great as that placed in deduction, since it is based on the assumption

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[320] Emphasis in original. Knorr and Morgenstern, 'Political Conjecture in Military Planning,' pp. 19, 21.

[321] The idea of applying these three methods of inference to strategic problems is contained in P.H. Liotta, 'Strategy and the Curse of Intended Outcomes,' *Strategic Review*, vol. 28, no. 1 (Winter 2000), pp. 47-54. However, he mistakenly assumes that all three methods infer a result from precodition and a rule.

[322] Peirce also referred to abduction as 'hypothesis' in his earlier writings.

[323] Charles S. Peirce, 'The Fixation of Belief,' *Popular Science Monthly*, vol. 12 (November 1877), pp. 1-15. Reprinted in Christian J. W. Kloesel, ed., *Writings of Charles S. Peirce: A Chronological Edition*, vol. 3 (Bloomington: Indiana University Press, 1986), p. 244.

FIGURE 19: METHODS OF INFERENCE

	Deduction	*Induction*	*Abduction*
Given	**Rule:** All the beans from this bag are white.	**Precondition:** These beans are from this bag.	**Rule:** All the beans from this bag are white.
Given	**Precondition:** These beans are from this bag.	**Result:** These beans are white.	**Result:** These beans are white.
Inferred	**Result:** These beans are *(definitely)* white.	**Rule:** All the beans from this bag are (*probably*) white.	**Precondition:** These beans are *(possibly)* from this bag.
Basic Nature	Logical transformation of the facts	Inferring the probable from observations	Discovering possible explanations

Example from: Charles S. Peirce, 'Deduction, Induction, and Hypothesis,' *Popular Science Monthly*, vol. 13 (August 1878), pp. 470-482. Reprinted in Christian J. W. Kloesel, ed., *Writings of Charles S. Peirce: A Chronological Edition*, vol. 3 (Bloomington: Indiana University Press, 1986), pp. 323-338.

> that a number of facts obtained in a given way will in general more or less resemble other facts obtained the same way; or, *experiences whose conditions are the same will have the same general characters.* [324]

As discussed above in connection with the danger of making forecasts, those who do not question this assumption do so at their own peril. However, under certain assumptions, induction can lead to robust conclusions that can sometimes even be described in terms of statistical uncertainty—induction is the logical basis of statistical inference.[325]

Abduction concludes from a rule and result to the precondition that might have caused the observation. It is the method of inference that underlies the formation of hypothesis and creativity, but at the same time that in whose conclusions least confidence can be placed. Peirce writes that

> By induction, we conclude that facts, similar to observed facts, are true in cases not examined. By [abduction], we conclude the existence of a fact quite different from anything observed, from which, according to known laws, something observed would necessarily result. The former, is reasoning from particulars to the general law; the latter, from effect to cause. The former classifies, the latter explains.[326]

Nevertheless, induction and abduction are closely related since any induction is implicitly based on the abductive inference that the observed precondition and result are

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[324] Emphasis in original. Charles S. Peirce, 'The Probability of Induction,' *Popular Science Monthly*, vol. 12 (April 1878), pp. 705-718. Reprinted in Kloesel, ed., *Writings of Charles S. Peirce: A Chronological Edition*, p. 305.

[325] Also see the discussion in Herbert, 'The Intelligence Analyst as Epistemologist,' pp. 666-684.

[326] Charles S. Peirce, 'Deduction, Induction, and Hypothesis,' *Popular Science Monthly*, vol. 13 (August 1878), pp. 470-482. Reprinted in Kloesel, ed., *Writings of Charles S. Peirce: A Chronological Edition*, p. 332.

representative samples of a larger whole.[327] In a strict sense, induction itself is thus reduced to the inference of a probability. All three methods of reasoning can thus also be interpreted in the light of the scientific method: Abduction generates a hypothesis to explain any kind of phenomenon. Deduction elaborates on this hypothesis and thereby infers observable consequences that must flow if it was true. Inductive reasoning is then used to statistically test the hypothesis on the basis of a large number of observed cases.[328]

FIGURE 20: INFERENCE IN DEFENCE PLANNING

	Deduction	*Induction*	*Abduction*
Given	**Rule/Model of Warfare:** Attacks on refineries cause severe disruptions in logistics and wider economic activity.	**Precondition:** Enemies often prepare to attack refineries.	**Rule/Model of Warfare:** Attacks on refineries cause severe disruptions in logistics and wider economic activity.
Given	**Precondition:** The enemy prepares to attack refineries.	**Result/Battle Outcome:** *(Scenarios and experience show that)* logistic and economic disruptions during wartime have to be expected.	**Result/Battle Outcome:** *(We think that)* logistical and economic disruptions during wartime have to be expected.
Inferred	**Result/Battle Outcome:** Logistic and economic disruptions during wartime *(definitely)* have to be expected.	**Rule/Model of Warfare:** Attacks on refineries will *(probably)* cause severe disruptions in logistics and wider economic activity.	**Precondition:** The enemy *(possibly)* prepares to attack refineries.

Since deduction is the only method where the validity of the inferred element is not in doubt if the same is true for the existing information on which it was inferred, it is obviously the preferred method of constructing the logical edifice on which a defence planning construct must rest.[329] However, deduction can only be used if precondition and rule are known, which means that it requires a situation in which there are no significant informational deficits regarding the capabilities and intentions of actual and potential enemies, and the numerous strategic cause-effect relationships which influence the way they would seek strategic effect (See Figure 20). Defence planners are thus rarely in a situation in which they are at liberty to choose the method of inference on which they can base their plans. Instead, this decision is dictated by the type of information that is available about strategic risks: If it is not known what the enemy's capabilities and intentions are, it is logically impossible to deduce requirements directly.

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[327] For a good overview on the three concepts, and this close relationship between induction and abduction in particular, see William H. Davis, *Peirce's Epistemology* (The Hague: Martinus Nijhoff, 1972), pp. 22-49.

[328] For a discussion of this perspective, see William Paul Haas, *The Conception of Law and the Unity of Peirce's Philosophy* (Fribourg: The University Press, 1964), pp. 69-83.

[329] Kugler, *Policy Analysis in National Security Affairs: New Methods For a New Era,* pp. 50-51. See also the discussion of the 'root method' in Ray Sunderland, 'A Methodology for Mobilization Planning,' in *Problems of Mobilization in Defence of Australia*, eds. Desmond Ball and J.O. Langtry (Canberra: Phoenix Defence Publications, 1980), pp. 125-138.

Instead, it is necessary to recur to abductive reasoning, on the basis of results that are assessed as a precautionary measure.[330]

In a defence planning context, it is thus helpful to distinguish induction from deduction and abduction. Since the latter two both infer pieces of information that are specific to a situation—the result in deduction and the precondition in abduction—they are both suited to directly analyse specific risks. The nature of induction is different, as it infers a rule whose validity by definition extends beyond a specific precondition. Its nature is to find patterns in observed data, deriving rules that can be used to reduce the complexity of a problem under consideration. Induction is thus the inferential basis of the use of scenarios for the purposes of strategy development:[331] By playing out various constellations, it is possible to gain a more general understanding of the situations one might face. However, the rules thus derived must then be used to derive requirements for specific situations on the basis of deductive or abductive reasoning.

5.1.3 Applied Inference: 'Net Assessment' and 'Asymmetry'

Writing in the early 1990s, Gray distinguished "threat-driven" planning in the Cold War from "uncertainty-pulled" planning for the future.[332] Arguably, this dichotomy is reflected in the difference between net assessment and the analysis of 'asymmetric threats'. A short discussion of these two concepts can help to elucidate the inferential difference between the four ideal defence planning methods developed below.

Michael Pillsbury writes that

> strategic [or net] assessment is an analysis of the *interaction* of two or more national security establishments in both peacetime and in war, usually ourselves and a potential enemy. It is the interaction of the two belligerents that is the central concept, not an assessment of one side alone.[333]

Intricate analytical tools are not necessarily required for net assessment,[334] although it grew out of the use of wargames for analytical purposes during the Cold War.[335] In

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[330] See the discussion of the application of the precautionary principle in Inter-Departmental Liaison Group on Risk Assessment, *The Precautionary Principle: Policy and Application*, p. 9-10, 16-17. The analysis of critical infrastructure is a good example for the area of strategy, see for example Paul W. Parfomak, 'Vulnerability of Concentrated Critical Infrastructure: Background and Policy Options,' *Congressional Research Service Report* RL33206 (Washington D.C.: Congressional Research Service, 2005).

[331] Peter Schwartz, *The Art of the Long View* (New York: Currency Doubleday, 1991). See also P.H. Liotta and Timothy E. Somes, 'The Art of Reperceiving,' *Naval War College Review*, vol. LVI, no. 4 (Autumn 2003), pp. 120-132 and, for an application of the method to a strategic problem, Richard Weitz, 'Meeting the China Challenge: Some Insights from Scenario-Based Planning,' *Journal of Strategic Studies*, vol. 24, no. 3 (September 2001), pp. 19-48.

[332] Gray, *Weapons Don't Make War*, p. 112.

[333] Emphasis in original. Michael Pillsbury, *China Debates the Future Security Environment* (Washington D.C.: National Defense University, 2000), p. 355.

[334] A point forcefully made in Paul Bracken, 'Net Assessment: A Practical Guide,' *Parameters,* vol. 36, no. 1 (Spring 2006), pp. 90-100.

[335] Andrew W. Marshall, 'A Program to Improve Analytic Methods related to Strategic Forces,' *Policy Sciences*, vol. 15, no. 1 (November 1982), pp. 47-50. For a historical overview, see George E. Pickett,

order to make a robust conclusion about the outcome of a conflict analysed by net assessment, quantitative and qualitative information about both sides' armed forces and society has to be complemented with information about how their forces would most likely be used in tactical, operational or even strategic terms, which requires knowledge about the enemy's theory of victory. In the words of Stephen Peter Rosen, net assessment

> is concerned with the question of what the war will look like and what the character of our long-term military competitions may be. *Given what we know* of our own political goals and those of the enemy, *given the observable behavior of the enemy* as he prepares for war, and *given our own plans*, what will be the general character of the war? How can our peacetime military programs affect those of the enemy?[336]

Net assessment is thus the closest practical approximation in the study of strategy to a prediction of the future, on the basis of available knowledge about the past and present of both adversaries and the environment in which they compete. It deduces from each side's capabilities and intentions (the 'precondition') and theories of victory as well as physical, psychological, social and political cause-effect relationships (the 'rules') to the most likely outcome of a particular conflict (the 'result'). The established methods of net assessment can thus be a powerful tool to define requirements for strategic success.[337] However, the fact that net assessment is based on the analysis of all relevant information is its strength and weakness at the same time, since its applicability is limited to those situations in which there are no substantial knowledge deficits regarding the enemy.[338]

After four decades of Cold War in which the Western security community was faced with an adversary that it had become quite familiar with, it was confronted with threats of a different nature than those it had become accustomed to—'crazy' and failed states, ethnic violence, terrorism as well as the distant possibility of emerging 'regional' peer competitors. While the United States solidified its unrivalled status in traditional military capability, it dawned on the US security community that new threats would be unlikely to play to US strengths,[339] and that "Every security community is the prisoner

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James G. Roche, and Barry D. Watts, 'Net Assessment: A Historical Overview,' in *On Not Confusing Ourselves*, eds. Marshall, Martin, and Rowen, pp. 158-188.

[336] Emphasis added. Stephen Peter Rosen, 'Net Assessment as an Analytical Concept,' in *On Not Confusing Ourselves*, eds. Marshall, Martin, and Rowen, p. 291.

[337] For a discussion of this role in the Australian context, see Brice Pacey, 'The Potential Role of Net Assessment in Australian Defence Planning,' *Working Paper,* no. 148 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1988).

[338] See Robert P. Haffa, *Rational Methods, Prudent Choices: Planning U.S. Forces* (Washington D.C.: National Defense University Press, 1988), Paul K. Davis, 'Planning Under Uncertainty Then and Now: Paradigms Lost and Paradigms Emerging,' in *New Challenges for Defense Planning: Rethinking How Much Is Enough*, ed. Paul K. Davis, pp. 15-58.

[339] Lawrence Freedman, 'The Transformation of Strategic Affairs,' *Adelphi Paper*, no. 379 (London: International Institute for Strategic Studies, 2006), pp. 49-60.

of its own strategic expectations."[340] Future enemies would be using 'asymmetric warfare', which Metz and Johnson defined as

> acting, organizing, and thinking *differently* than opponents in order to maximize one's own advantages, exploit an opponent's weakness, attain the initiative, or gain greater freedom of action. It can be *political-strategic*, *military-strategic*, *operational*, or a *combination* of these. It can entail different *methods*, *technologies*, *values*, *organizations*, *time perspectives*, or some *combination* of these.[341]

A RAND study further remarked that

> Asymmetric strategies attack vulnerabilities not appreciated by the "target" (victim) or capitalize on the victim's limited preparation against the threat. These strategies rely (primarily, but not exclusively) on CONOPs (concepts of operations) that are fundamentally different from the victim's and/or from those of recent history. They often employ new or different weapons.[342]

A flurry of writing ensued in which the perennial fact that enemies play their strengths against the other side's weaknesses was re-discovered over and over again.[343] However, the discussion also highlighted a number of strategies and threats that the United States was ill-prepared to deal with: "unusual" threats (such as the taking and torturing of hostages); "irregular" threats (such as nuclear explosions to disrupt satellite operations); threats "unmatched" to the American arsenal of capabilities and plans (such as the use of civilian infrastructure to conduct attacks); threats highly leveraged against US military and civil assets (such as ballistic missiles and weapons of mass destruction); threats that are difficult to respond to in kind or in a discriminate and disproportionate manner (such as terrorism and the use of WMD); or threats that are conducive to the frightening prospect of the "unknown unknown" (such as the ramifications that may be associated with an extensive attack with biological weapons).[344]

These threats, and the methods to infer them, are instructive for the discussion here since they were not directly deduced from the observed preparations of specific enemies—a priori, they were *possible* threats only. Analysts assumed a result (a US defeat by a much smaller rogue state, for example), which they then tried to explain using given rules (of how the US political system and US forces operate). The resulting possible explanation or preconditions (the asymmetric threats) are thus based on the use

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[340] Colin S. Gray, 'Thinking Asymmetrically in Times of Terror,' *Parameters*, vol. 32, no. 1 (Spring 2002), p. 8.

[341] Emphasis in original. Steven Metz and Douglas V. Johnson, *Asymmetry and U.S. Military Strategy: Definition, Background, and Strategic Concepts* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2001), pp. 5-6.

[342] Bruce W. Bennett, Christopher P. Twomey, and Gregory F. Treverton, *What are Asymmetric Strategies?* (Santa Monica: RAND, 1999), p. 3.

[343] For a good critique, see Stephen Blank, 'Rethinking the Concept of Asymmetric Threats in U.S. Strategy,' *Comparative Strategy*, vol. 23, no. 4-5 (October-December 2005), pp. 343-367. One of the better early works on the subject was Kenneth F. McKenzie, 'The Revenge of the Melians: Asymmetric Threats and the next *QDR*,' *McNair Paper*, no. 62 (Washington D.C.: Institute for National Strategic Studies, National Defense University, 2000).

[344] Steven Lambakis, James Kiras and Kristin Kolet, *Understanding "Asymmetric" Threats to the United States* (Fairfax, VA: National Institute for Public Policy, 2002), 13-14.

of abductive reasoning.[345] The concept of asymmetry was a logical adaptation to the significant uncertainty about the identity and modus operandi of future adversaries by identifying threats based on the information that was available—*most of which related to the United States itself rather than any future enemies.* Not by accident, the concept got out of fashion after the campaigns in Afghanistan and Iraq, which provided ample direct information on enemy strategies. However, it does live on to some extent in the analysis of possible anti-access strategies of regional powers.[346]

5.2 The Treatment of Strategic Risks

Once requirements are defined, it is necessary to develop capabilities and a force structure that are confidently assessed to be able to fulfil them.[347] Requirements can be well known and detailed, or uncertain and broad. Requirements can also be relatively few and similar in nature, or many and dissimilar. Some must be fulfilled in the present, some only at some stage in the future. There will, therefore, not be one way of fulfilling requirements that is applicable to all cases. Indeed, the literature on defence planning uses several terms that relate to the accommodation of uncertainty, without a commonly accepted or understood definition of any of them. Often, terms such as hedging or options are used interchangeably and without well defined meanings. This section will thus define four general properties that can be sought in force structures and capabilities and which relate to their ability to deal with different degrees of specificity of requirements.[348]

5.2.1 Hedging, Options, Portfolios and Flexibility

The first method of dealing with risk is through the use of *hedging.* Evans Medeiros rightly writes that "The term 'hedging' is highly underdeveloped in both the international relations theory and the security studies literature."[349] It does, however, have a very specific meaning in the context of finance, where it is a term for the reduction of a financial risk through the purchase or selling of a derivative financial asset whose value is highly, or even perfectly, inversely correlated with that of an underlying asset.[350] In its effects, hedging is thus very similar to an insurance contract: It always refers to very specific risks (the change in the value of the underlying asset, for example, or those mentioned in the insurance policy) and all costs associated with it (the purchase price of the derivative or the insurance premium) have to be paid up front. These two characteristics are a hedge's main strength and weakness, since the risk must

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[345] Only in a second step (usually implicit) are all possible explanations 'weeded' out by determining those that are credible—however that judgement is made.

[346] See, for example, Eric V. Larson, Derek Eaton, Paul Elrick, Theodore Karasik, Robert Klein, Sherrill Lingel, Brian Nickiporuk, Robert Uy, and John Zavadil, *Assuring Access in Key Strategic Regions* (Santa Monica: RAND, 2004).

[347] See Sections 4.2.3 and 4.2.5.

[348] There are also parallels between these concepts and mitigation (hedging) and preparedness (options) in civilian emergency planning. See David Alexander, *Principles of emergency planning and management,* p. 5.

[349] Evans S. Medeiros, 'Strategic Hedging and the Future of Asia-Pacific Stability,' *Washington Quarterly*, vol. 29, no. 1 (Winter 2005-2006), footnote 1.

[350] Basic discussions of the concept of hedging are included in any corporate finance textbook. See, for example, Stephan A. Ross, Randolph W. Westerfield, and Jeffrey Jaffe, *Corporate Finance* (Chicago: Irwin, 2nd edition, 1990), pp. 649-678.

be well defined, the cost can be substantial, any mismatch between the hedge and risk will result in a costly failure, and it can be difficult to unwind.[351] Both of these characteristics can also be applied to identify hedges in the defence planning context, especially when they are to be distinguished from options. Ballistic missile defence systems are, for example, capability hedges that are very specific in their tactical use and have to be paid upfront. A total force structure can also be a hedge against a very specific risk if it is optimised for one scenario only, such as the units on NATO's Central Front.

The second method of dealing with risk and uncertainty is that of an *option*, again a term whose loose use in the defence planning literature, where it is usually used interchangeably with a candidate solution under consideration, stands in stark contrast to its clear definition in the financial context. There, options are standardized financial contracts that give the buyer the right to sell (put-option) or to buy (call-option) an underlying asset at an agreed 'exercise' or 'strike' price in the future. There is, however, no obligation on his part to do so. An option is thus worth nothing if the market price of the underlying asset at the expiration date is below (call-option) or above (put-option) the exercise price, since the option holder is then better off to make a transaction through the market itself. Otherwise, the value at the expiration date is the difference between the market price and the exercise price. Before that, the price of an option depends on, among other parameters, the current price of the underlying asset and the exercise price, the time left until the expiration date, and the variance of the price of the underlying asset.[352]

Options are thus characterized by the fact that they always involve an investment in two stages, first for the option itself, and then a discretionary second one if the option is exercised. The value of an option derives from the fact that new information becomes available between these two stages, on the basis of which the buyer of the option can make a second decision in the future. Many investments in real (as opposed to financial) assets, such as in empty land or in oil exploration, also do not generate profits immediately but provide the opportunity to invest again, by constructing houses or producing oil, once more information is available. These situations are often referred to as real options, and there are several accounting techniques to assign a value to such initial investments.[353] The Australian Defence Material Organization explains that

> Real options are concerned with investment in physical assets, ideas (including R&D) and capabilities. A Real Option has commercial value and, in the Defence context, capability value, when it allows decisions to be modified in light of new information and when new information is likely to favour an altered strategy. The greater the

[351] Diane B. Wunnicke, David R. Wilson, and Brooke Wunnicke, *Corporate Financial Risk Management* (New York: John Wiley & Sons, 1992), pp. 223-230.

[352] Options are also discussed in any corporate finance textbook. See, for example: Ross, Westerfield, and Jaffe, *Corporate Finance*, pp. 561-597.

[353] See, for example: Tom Copeland and Vladimir Antikarov, *Real Options: A practitioner's guide* (New York: Texere, 2001), and Martha Amran and Nalin Kulatilaka, *Real Options: Managing Strategic Investment in an Uncertain World* (Boston: Harvard Business School Press, 1999).

> uncertainty, and the greater the cost of the investment being contemplated, the greater the value of the real option.[354]

As in civilian life, many investments in the defence planning area are thus real options since their primary aim is to acquire the ability to make another investment at a later stage. While options are never free, the initial investment is often small in comparison with that of the second stage, which can usually be scaled and designed according to future needs. The three important characteristics of options are, therefore, the fact that the desired capability is only available after two stages or investments, a lesser degree of specificity than hedging regarding the risks that can be treated (due to the choices that can be made regarding the scale and scope of the second stage investment), and the fact that only some of the costs have to be paid upfront, and the remainder at the time that the option is exercised. Any type of defence research and development is thus an option, for example, since it does not provide capability directly, but the opportunity to build new or improved systems at a later stage.

A third method, suitable to deal with a range of requirements that is however specified in advance, is a portfolio of forces—another analogy from financial markets. Portfolio theory describes how investors can deal with uncertainty regarding future prices of various assets.[355] It begins with the assumption that an investor prefers, ceteris paribus, assets with high over those with low expected returns, and, ceteris paribus, those with a low variance in expected prices over those with a high variance. If an investor holds a diversified portfolio of several assets, the expected return of the portfolio is the (weighted) average of the component stocks. For a given expected return, the variance of the portfolio is however less than the weighted average of the individual variances, since it is a linear combination of the individual variances and the covariance between the assets.[356] In general, a portfolio is thus the optimum solution to a problem in which an investor is confronted with uncertainty along several dimensions (the uncertain prices of several assets), but information is available to describe all of these uncertainties (through historical data on price volatility), and the investor's objective function is also known (to maximize his utility function, which combines the expected return and risk of his portfolio).

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[354] Defence Materiel Organization, *Defence Electronics Systems Sector Strategic Plan* (Canberra: Department of Defence, 2004), p. 100.

[355] Harry Markowitz, 'Portfolio Selection,' *Journal of Finance*, vol. 7, no. 1 (March 1952), pp. 77-91. An alternative explanation for the fact that some risk can be diversified away is included in the Arbitrage Pricing Model, which assumes that the variance of all stocks consists of one part that is a reaction to (random) factors that affect all stocks, and an individual random part. In a diversified portfolio, the individual random part of the variance is averaged out, so that only the variance due to factors that affect the whole market remains.

[356] This is, of course, only true unless the prices of the assets are independently distributed. In a graph with the variance on the horizontal and the expected return on the vertical axis, portfolios of two assets thus usually lie above the line that connects the individual assets. Depending on the correlation, the line of portfolios can even bend backwards so that, for some portfolios, a rise in the expected return is accompanied with a reduction in variance. An investor would thus only choose portfolios on the upward sloping part of the line, since only these are efficient combinations of expected return and variance. It can be shown that the form of the efficient line is always of a similar, upward sloping form, no matter how many assets are included in the portfolio. Adding additional stocks to the portfolio reduces its variance, until the portfolio represents the whole market. The variance of a portfolio that is representative for the whole market is the residual risk that the investor cannot diversify away.

If one abstracts from the financial context, the problem here is thus not one risk (and its associated uncertainty) that could be hedged, but a number of risks that are nevertheless fairly well defined. Also, the portfolio consists of a number of assets that all contribute, in one form or another, to the reduction of each individual risk (via the covariance between asset prices in the financial example, or the fact that any military system will usually have at least some, however limited, usefulness in military operations of any kind). Since the decisionmaker can only maximise his *expected* return, it is likely that a portfolio that is optimum *ex-ante* will turn out not to have been so *ex-post*. Such regrets are, however, taken into account since the variance of the outcome is also considered. In other words, the decisionmaker selects that force structure and capability combination that fares best, on average and with a limited variance, over numerous combinations of realised risks,[357] which is however going to be a different one from a force structures optimised to deal with any of the individual risks. One methodology that could be used such a portfolio is the concept of a 'scenario-space' developed by Paul Davis at RAND.[358]

The fourth method of dealing with uncertainty is a flexible force. In very general terms, flexibility can be defined as the ability of a force structure or capability[359] to adapt instantly and without warning to threats that have *not been explicitly considered in advance*.[360] In a sense, flexibility is thus a general buffer against uncertainty.[361] There is no satisfactory general way yet of measuring flexibility, but it is usually described along several dimensions specific to the situation at hand.[362] Unit compositions and doctrines that allow task-oriented formations are, for example, more flexible in a *configurational* sense than those which can only be employed in the formal order of battle. Joint task groups, brigade combat teams, battlegroups and company groups are all based on the same idea that headquarters, combat and support troops can be readily mixed and matched at various scales.[363] *Functional* flexibility, rooted in doctrine and training, is the ability of a given unit to switch between different roles or perform

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[357] For a practical example, see for example the discussion on peak-load theory and the substitution of reserve for regular forces in Michael A. Rostek, 'Developing a Surge Capacity for Canadian Forces,' *Defence and Peace Economics*, vol. 17, no. 5 (October 2006), pp. 421-434.

[358] Paul K. Davis, David Gompert, and Richard Kugler, *Adaptiveness in National Defense: The Basis of a New Framework* (Santa Monica: RAND, 1996), pp. 3-5; Paul K. Davis, 'Uncertainty-sensitive planning,' pp. 146-151. It can, of course, also be used to evaluate a force structure's capability to deal with different 'variants' of one threat.

[359] The need for flexibility can also extend to the civilian part of a defence organization. See for example Paul C. Light, 'Rumsfeld's Revolution at Defense,' *Policy Brief*, no. 142 (Washington D.C.: The Brookings Institution, 2005).

[360] Ross Babbage, *Rethinking Australia's Defence* (St Lucia: University Press of Queensland, 1980), p. 277.

[361] A. De Toni and S. Tonchia, 'Manufacturing flexibility: a literature review,' *International Journal of Production Research*, vol. 36, no. 6 (June 1998), pp. 1588-1589.

[362] Roshanak Nilchiani, *Measuring the Value of Space Systems Flexibility: A Comprehensive Six-element Framework*, PhD Thesis (Cambridge, MA: Massachusetts Institute of Technology, 2005), pp. 30-34.

[363] For a good discussion of the organizational and product modularity in a force structure context, see Melissa A. Schilling and Christopher Paparone, 'Modularity: An Application of General Systems Theory to Military Force Development,' *Defense Acquisition Review Journal* (August-November 2005), pp. 279-293. See also Army Transformation Office, *United States Army: 2004 Army Transformation Roadmap* (Washington D.C.: Department of Defense, 2004); 'Formations: Battlegroups and Company Groups,' *British Army Website,* <http://www.armedforces.co.uk/army/listings/10014.html> (11 July 2006).

several roles at once, such as combat operations, peacekeeping, humanitarian assistance or training of friendly forces. The Australian DoD uses the term 'versatility' in this context.[364] The US Defense Science board defines 'strategic agility' or *geographic* flexibility as "the ability to rapidly move personnel, materiel, and weapons when and to where they are needed and to maneuver them within the battlespace as required."[365] It also writes that

> "Achieving strategic agility involves ... myriad movement and support issues that are important and need to be resolved. However, solving those concerns alone will not address strategic agility challenges unless the *characteristics* of U.S. forces are also changed.
> ***The task force concluded that DoD must design strategic agility into future forces from the outset. ... DoD should no longer treat operations as something supported by logistics—rather, operations and logistics must operate as a single entity in the battlespace and in providing capabilities for use in the battlespace. They are inseparable elements.***[366]

Although it can thus be relatively straightforward to describe the degree of flexibility of any given force structure, achieving flexibility can involve significant costs—configurational and functional flexibility, for example, mean that the advantages of specialization are foregone. Gray writes that

> Flexibility has many components, including an openness of mind, an excellence in doctrine (or in provision for doctrinal revision), and a suitable elasticity of organizational framework. Also, however, flexibility is a matter of money and time. ... *[F]lexibility tomorrow in the use of military power of all kinds must depend upon decisions made today.*[367]

5.2.2 A Defence Planning Toolbox for Risk Treatment

If one conceives of defence planning tools as specific and mutually exclusive ways of spending limited resources to obtain military capability of some kind, there are of course numerous if not countless such tools. This section will analyse them along two dimensions to provide a framework or toolbox to deal with uncertainty over time. The first dimension distinguished here are the four ways of accommodating differing specificity of requirements discussed above. The second dimension is the time that it takes to derive combat capability from a defence planning tool. This relates both to warning and reaction time considerations, and conceptions of readiness. Since both available resources and the useful lifespan of defence assets are limited, any defence planning decision inevitably involves a trade-off of risk over time.

Rather than trying to be exhaustive, the aim here is to suggest that any defence capability or force structure can be usefully analysed in these terms. It is thus possible to describe forces or aspects of forces that primarily hedge in the short term—e.g. units

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[364] Department of Defence, *Australia's National Security: A Defence Update 2005* (Canberra: Commonwealth of Australia, 2005), p. 19.

[365] Defense Science Board, *21st Century Defense Technology Strategies*, vol. I (Washington D.C.: Department of Defense, 1999), p. 21.

[366] Emphasis in original. Ibid., pp. 21-22.

[367] Emphasis added. Gray, *Weapons Don't Make War*, p. 116.

that are optimised in terms of equipment, training, and location to respond to one particular immediate scenario—or those that primarily provide flexibility—e.g. through modular force structures with organic support, compatible communications and procedures, and multirole platforms (Figure 21). Options are provided in the short term by high readiness reserves and by provisions for the call-up of civilian assets, such as the US Civil Reserve Air Fleet. A portfolio organization is usually a trait of a force structure as a whole. However, modular platforms or the assignment of specific missions to the same unit are tools that can be clearly assigned to this category.

FIGURE 21: DEFENCE PLANNING TOOLS

	Hedging	*Options*	*Portfolio*	*Flexibility*
Short Term (hours to days)	-Specialized Platforms -Operational Readiness -Units optimised for specific scenarios -Specialized training and doctrine -Resilient Infrastructure	-Preparations for the rapid call-up of civilian assets -High-readiness reserves	-Multirole platforms -Multiple missions assigned to same units	-Modular payloads -Structural and operational readiness -Modular Order of Battle -Functional Flexibility in Training and Doctrine -Strategic transport -Compatible C^2 -Organic logistics and combat support
Medium Term (weeks to months)	-Structural Readiness to prepare for a single risk.	-Preparations for specific industrial surges -Platforms 'Fitted for, not with' -General Reserves	- Structural readiness to prepare for several concurrent risks.	-Broad platform inventory -Cultural tolerance of changes to doctrine
Medium Term (months to years)		-Low-readiness reserves -Mobilization readiness -Prototyping without procurement		
Long Term (years)	n/a	-Mobilization readiness -R&D	n/a	n/a

In a discussion of the trade-off of capability over time, Betts distinguishes three kinds of military readiness[368] that all need to be integrated in order to form a coherent strategy.[369] They can readily be integrated into the framework proposed here:

[368] Richard K. Betts, *Military Readiness* (Washington D.C.: The Brookings Institution, 1995), pp. 40-43.

- *Operational readiness*[*] relates to the difference between the full combat potential of existing military units and their current potential. Operational readiness minimizes this difference through investment in training, stockpiling of munitions, spare parts and supplies, the maintenance of wartime manpower and materiel levels. Operational readiness is thus useful if it is necessary to prepare for combat within days or weeks. But it is difficult and expensive to maintain and therefore requires specific answers to such questions as which elements of the force structure need to be kept at high levels of readiness, what the requirements for this readiness are in terms of, for example, munitions and supply stocks,[370] or what lift capability is necessary to deploy. Ceteris paribus, operational readiness therefore only helps to deal with those, fairly specific situations in which the quantity of troops kept at high readiness is sufficient to achieve strategic effect, in which they have the right quality to meet the enemy's challenge, and in which they can get to the point where they are needed in the first place. Operational readiness is, therefore, primarily a hedge.

- *Structural readiness*[*] relates to the extent to which the military potential inherent in a nation's population and economy has been transformed into military units (comprising personnel, weapons- and support systems), regardless of their state of operational readiness. It is thus the relevant type of readiness to meet demands for combat capability that are expected within months or at most a couple of years, which are required to bring these units to an operationally ready state. Since structural readiness refers merely to the quantity of units available it is, ceteris paribus, also a hedge. If it is combined with operational readiness, however, both can provide a measure of flexibility in the short term since such a situation implies that quantitative restrictions are largely absent—this was, for example, the nature of the flexibility that allowed the United States to react to Iraq's invasion of Kuwait in 1990.

- *Mobilization readiness*[*] relates to the degree to which preparations have been made to transform the military potential of a nation into actual capability. It comprises such elements as mobilization plans, industrial capacity and military technology. Broadly understood, it can refer to timescales of weeks or even days (for surges of industrial production with existing machinery and tools) to many years.[371] In general, mobilization readiness tries in advance to reduce the problems that are caused by the over-proportional demand for inputs of any kind (including for military and industrial planning) during mobilization, when economic and physical flows need to be raised abruptly to augment stocks of

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[369] See, for example, the discussion in Colin S. Gray, 'Mobilization for High-Level Conflict: Policy Issues,' in *The U.S. Defense Mobilization Infrastructure: Problems and Priorities*, eds. Robert L. Pfaltzgraff and Uri Ra'anan (Hamden, CT: Archon Books, 1983), pp. 33-49.

[370] For a good survey of different methodologies and practices in determining munitions stockpiles, see William S. Andrews and William J. Hurley, 'Approaches to Determining Army Operational Stockpile Levels,' *Canadian Military Journal*, vol. 5, no. 2 (Summer 2004), pp. 37-46.

[371] For a good discussion of the problems of mobilization in the recent context, see Irene Kyriakopoulos and Donald L. Losman, 'The Economics of Mobilization in the Information Age,' *Joint Force Quarterly*, no. 37 (2nd Quarter 2005), pp. 87-95.

> military equipment and personnel over time.[372] Since it thus by definition involves a second stage investment, that of the mobilization itself, mobilization readiness in any form is an option.[373]

While hedging in the medium term is thus largely a question of structural readiness, options can be provided by preparations for industrial surges and reserves. Platforms that are fitted for but not with certain systems, or the development of prototypes without production (or very short production runs for industrial more than military reasons) also provide options over this timescale. Structural readiness to deal with several concurrent risks allows the achievement several different tasks with a portfolio of forces. Flexibility is inherent in forces with a tolerance for changes in doctrine, or a robust (civilian) industry that can respond quickly to new demands. For the provision of military capability in the long term, options are the only tool available, since hedges would be outdated and flexibility is meaningless when there are no constraints in the form of a legacy force (yet).

FIGURE 22: INTERNATIONAL DEFENCE PLANNING TOOLS

	Hedging / Options / Portfolio / Flexibility
Short Term (days)	- Resupply Agreements - Replacement of Attrition - Allied Assistance (Money, Intelligence, Logistics, Forces, Diplomacy)
Medium Term (weeks to months)	- Access to New Platforms and Systems (e.g. Patriots for Israel 1991) - Allied Assistance (Money, Intelligence, Logistics, Forces, Diplomacy)
Medium Term (months to years)	- Access to Industrial Capacity - Access to Technology - Allied Assistance (Money, Intelligence, Logistics, Forces, Diplomacy)
Long Term (years)	- Access to Industrial Capacity - Access to Technology - Allied Assistance (Money, Intelligence, Logistics, Forces, Diplomacy)

Although hedging, options, portfolio elements and flexibility can usually be readily distinguished in the context of domestic defence planning decisions, the distinction is—for two reasons—less analytically helpful for the international sourcing of defence assets, especially from allies: First, cost in this context is measured in financial as well as less identifiable political terms. Access to technology or intelligence information can, for example, not usually be bought with money, and although the political

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[372] For an introduction into these surge dynamics, see Rolf Clark, 'The Hidden Implications of Force Changes,' *Defense Acquisition Review Journal* (Summer 1997), pp. 243-252.

[373] For three, relatively rare post-Cold War examples that look at different kinds of military and industrial options to reduce mobilization times, see Defense Science Board, *High Performance Microchip Supply* (Washington D.C.: Department of Defense, 2005); James A. Dewar, Steven C. Bankes, and Sean J.A. Edwards, *Expandability of the 21st Century Army* (Santa Monica: RAND, 2000); John Birkler, Joseph P. Large, Giles K. Smith, and Fred Timson, *Reconstituting a Production Capability* (Santa Monica: RAND, 1993).

investment in an alliance that has led to it is 'a price to pay', it is impossible to disintegrate that relationship to identify the cost of specific aspects of the alliance. Second, allies have a history of providing direct financial assistance or material support free of charge, especially in times of crisis. Even if there is an identifiable financial cost associated with the sourcing of support from allies abroad, it is thus not certain who has to bear it in the end. Figure 22 therefore only distinguishes internationally available defence planning tools according to the timescale they are relevant to. In specific cases, however, it would nevertheless be possible to distinguish *expected* support according to whether it was a specific hedge with significant cost associated, an option that required a small investment in advance, or flexible in the sense that it was provided free of direct charge and with few conditions or constraints.[374]

5.2.3 The Development and Procurement of Major Weapons Systems

The terminology developed above can also be applied to the development and procurement of major weapons systems. Such decisions lock important parts of the force structure in for decades to come, and major capability systems available in the short- and medium term are largely a consequence of decisions taken in the, sometimes distant, past.[375] For all the reasons discussed in Sections 2.3, it is however impossible in practice to predict the security situation with any confidence over the long service lives of modern major platforms. Requirements for major programs and ways to fulfil them therefore inevitably have to deal with a growing uncertainty over time.

If they are properly maintained, major weapons systems can remain in the order of battle for a very long time—the upgraded B-52 bomber, for example, will be in service for the better part of a century. It is therefore possible to use them to achieve strategic effect over the short, mid- and long term, which implies immediate trade-offs since (often yet unknown) operational requirements will vary over this time. One possible way around this problem is to reduce the planned in-service life, optimise the platform for the requirements over a relatively short period, and replace it with a new model in the near future, which can be designed for the then better known, future requirements. Obviously, such an approach implies a need to treat a prohibitive strategic risk in the present that would justify the significant cost involved. The development and fielding of a quick succession of US interceptor aircraft to deal with Russian bombers in the 1950s, for example, made it possible to provide urgently required capability and deal with technological as much as strategic uncertainty at the same time.

If such an approach is not possible (since lead-times are too long, or financial resources are insufficient), or not necessary (since risks over the short term are no greater, though usually more precisely known, than over the mid- or long term), the same platform needs to be able to treat different strategic risk over time. Traditionally, platforms are

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[374] There is, of course, usually also the choice to use stockpiling or domestic production support instead of allied resupply. Economic modeling shows that low risk of supply interruption and high-risk aversion would favour domestic production support over stockpiling. See Martin C. McGuire, 'Uncertainty, Risk Aversion, and Optimal Defense Against Interruptions In Supply,' *Defence and Peace Economics*, vol. 17, no. 4 (August 2006), pp. 287-309.

[375] Air Vice-Marshal Kerry Clarke, the Head Capability Systems in the Australian Department of Defence, estimated that 30 percent of the Australian Defence Force's (ADF) major systems could be changed over a 10 year defence capability plan. Kerry Clarke, 'Mapping the ADF's Future Capability to Future Warfighting Concepts,' Presentation at the *Joint Future Warfighting Conference*, Canberra, 20-21 April 2005.

thus designed to fulfil the known requirements of the short term, which in turn could require more of a hedge in the form of a platform optimised for a specific mission, modularity as part of a portfolio of forces, or multi-role capability to provide for flexible use. The uncertainty regarding the nature of the systems that would need to be integrated in the future—since future threats and technology are uncertain—has been managed through the inclusion of an additional option in the form of space, payload and power supply beyond that required by the initial configuration. The growth potential thus provided could then be used to enhance the capability of the platform in second-stage investments in the form of regular block upgrades.[376] Ideally, the trade-off between the provision of initial capability on the one hand and the (financial and operational) cost of the option on the other hand should reflect the decisionmaker's risk evaluation over that time.

Whether requirements are certain or uncertain has important consequences for the development and acquisition process as well.[377] If they are deductively derived from intelligence about enemy systems and placed in a coherent theory of victory, requirements should be specific and made with a relatively high degree of confidence. Since it is imperative to fulfil them—it is known that the system would be deficient in combat otherwise—it becomes necessary to achieve the full requirement in one step. The resulting 'grand design' approach to acquisition has been used by many defence departments over the last decades, with consecutive phases of development, operational testing and large-scale fielding.[378] Changes in requirements over time were dealt with by the provision of growth potential, as mentioned above, or by Preplanned Product Improvements (P^3I), which also consist of clearly defined requirements followed by development, testing and fielding of new capability blocks.[379]

If it is, however, not possible to precisely define requirements even in the short term—for example if the way in which enemies operate, and consequently the capabilities needed to defeat them, are unknown—it becomes possible to trade operational capability of individual systems for quantity, money, or even new information in the form of operational experience. In order to manage a project on the basis of cost as an independent variable, for example, "operational requirements ... should identify system characteristics and define threshold ranges required for user effectiveness *and be treated as interim versus final.*"[380] When requirements are flexible in this way, evolutionary acquisition can also be used. Rather than beginning production only once the system

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[376] For a discussion of this strategy in the context of Australian naval shipbuilding, see Australian Submarine Corporation, *Improving the Cost-Effectiveness of Naval Shipbuilding in Australia: A Submission to the Senate Foreign Affairs, Defence and Trade References Committee of the Australian Parliament*, March 2006.

[377] See for example the general discussion in Defense Acquisition Performance Assessment Project, *Defense Acquisition Performance Assessment Report* (Washington D.C.: Department of Defense, 2006), esp. pp. 4-9.

[378] Richard K. Sylvester and Joseph A. Ferrara, 'Conflict and Ambiguity: Implementing Evolutionary Acquisition,' *Defense Acquisition Review Journal* (Winter 2003), pp. 3-27.

[379] Wayne M. Johnson and Carl O. Johanson, 'The Promise and Perils of Spiral Acquisition: A Practical Approach to Evolutionary Acquisition,' *Defense Acquisition Review Journal* (Summer 2002), pp. 177-178.

[380] Emphasis added. Michael A. Kaye, Mark S. Sobota, David R. Graham, and Allen L. Gotwald, 'Cost as an Independent Variable: Principles and Implementation,' *Defense Acquisition Review Journal* (Fall 2000), p. 537.

fulfils all criteria, as in the 'grand-design' approach, platforms and systems are fielded in this method without fulfilling all initial requirements, if they nevertheless provide some operational value.[381] In the United States, evolutionary acquisition is now the preferred acquisition strategy and usually based on spiral development. Unlike P^3I based on block improvements, spiral development is explicitly based on the operational experience gained with earlier versions, and the exact modifications that will be fielded in each spiral are not determined in advance.[382] Instead, various candidate elements are developed at the same time and thus represent options that can be implemented in the next improvement block.[383]

In this way, it is possible to use incrementally fielded capability to gain operational information and thus develop knowledge on how to achieve strategic effect against an enemy that is not well understood, or on how to use a completely new technology—an adaptive approach as discussed in Section 4.1.4. The US Missile Defense Agency (MDA), for example, is charged with developing a global ballistic missile defence system, but its operational requirement documents were cancelled in 2002. Instead, it operates, together with the services, militarily useful capability as part of its testbed to gain operational and technological expertise.[384] The agency writes that this approach

> allows the development of capabilities *and objectives* based on technology feasibility, disciplined engineering analysis, and our understanding of the threat. It allows the Agency to exploit capability opportunities sooner, focusing on adding capabilities with demonstrated military utility rather than delaying to achieve a military requirement that may have been defined years earlier. ... It allows the Agency to *refine program objectives* as technology becomes available through experimentation and risk management, and factor in continuous feedback that is developed from regular interaction with the military operators and test community.[385]

Given the lack of precise information about the threat, as well as the fluid state of the new technology involved, the only basis that is available to infer *realistic* requirements is that generated by the program itself.

5.3 Four Ideal Defence Planning Concepts

This last section will define four ideal defence planning concepts. Each will integrate different risk patterns, ways of codification, and force structure concepts in a way that a configurational fit is maintained between all three steps.

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[381] For a good discussion of the obvious difficulty in implementing such an approach, see Sylvester and Ferrara, 'Conflict and Ambiguity: Implementing Evolutionary Acquisition.'

[382] Johnson and Johanson, 'The Promise and Perils of Spiral Acquisition: A Practical Approach to Evolutionary Acquisition.'

[383] For options in the development phase, see Cagan Ceylan and David N. Ford, 'Using Options to Manage Dynamic Uncertainty in Acquisition Projects,' *Defense Acquisition Review Journal* (Fall 2002), pp. 242-258.

[384] For a discussion of the particularities of the agency's organization, see Timothy Biggs, 'Blurring The Line Between R&D and Operations: The Missile Defense Agency's Acquisition Approach,' *Defense AT&L Magazine* (July-August 2005), pp. 24-27.

[385] Emphasis added. Missile Defense Agency, *A Day in the Life of the BMDS* (Washington D.C.: Department of Defense, 2006), p. 6.

5.3.1 Assumptions about Risk Patterns

Section 3.3.3 introduced a framework for evaluating strategic risk along three dimensions: Time,[386] the identity of enemies, and their theory of victory. The resulting cube can be conveniently used as a basis for developing defence planning *Gestalts*, since different combinations of strategic risk can be represented by highlighting different quadrants of the cube. For the sake of simplicity, two categories will be considered here: First, prohibitive risks that the decisionmaker evaluates as being so important that treating them is imperative. Second, normal risks where this imperative does not exist, either since there is no information that would lead the decisionmaker to see specific risks or a case for precaution, or since the capabilities that are planned for dealing with other risks are judged to be inherently sufficient to cope with risks from the quadrant under consideration.

However, even if each quadrant is only considered to be either normal or prohibitive, this would still lead to 2^8, i.e. 256, possible combinations in an eight-quadrant cube. Despite the large number of defence planning concepts proposed in the literature, there are obviously not 256 basic types, and it would be neither possible nor informative to discuss each and every one of these risk combinations. However, a few simple assumptions about consistent risk patterns, outlined in the following, can help to reduce the number of combinations that have to be considered.

The first assumption is that at least one quadrant is judged to be prohibitive. Otherwise, there is no reason for the state to conduct defence planning at all. The empirical record, however, suggests that few, if any states see themselves able to completely dispense with defence preparations.

The second assumption is that if one of the four risk quadrants in the present is judged to be prohibitive, the corresponding quadrant in the future must be judged to be prohibitive as well. The contrary could only be true for one of two reasons: First, if there was information at the risk assessment stage that indicates that the risk will be reduced compared with the present. However, it is difficult to believe that, even if such indications exist, it would be possible to make a confident prediction of when exactly that would be the case, to the point where force planning decisions could be based on it. Also, a reduction of risk from a prohibitive level in the present to a normal level in the future would most likely be associated with significant social, economic, or political changes, which present a strong case for precaution. Second, there could be a case in which present risk was evaluated to be so large that its importance eclipses all future risk. In other words, a military challenge in the present could be so important that, if it was not met successfully, any planning for the future was meaningless. Israel in 1948 or France and Britain in 1939 were in such situations, but here the problem of developing coherent defence planning concepts reduces itself to meeting quite obvious operational-level threats at all cost, and is very much different to the way in which similar questions would be approached in peacetime (which is the topic of this thesis). These first two assumptions leave 80 possible combinations.

The third assumption is that a state will not be faced with unknown enemies only. It is, of course, possible that decisionmakers do not have information at the risk assessment stage to confidently know who their (next) enemy will be, however there is then no

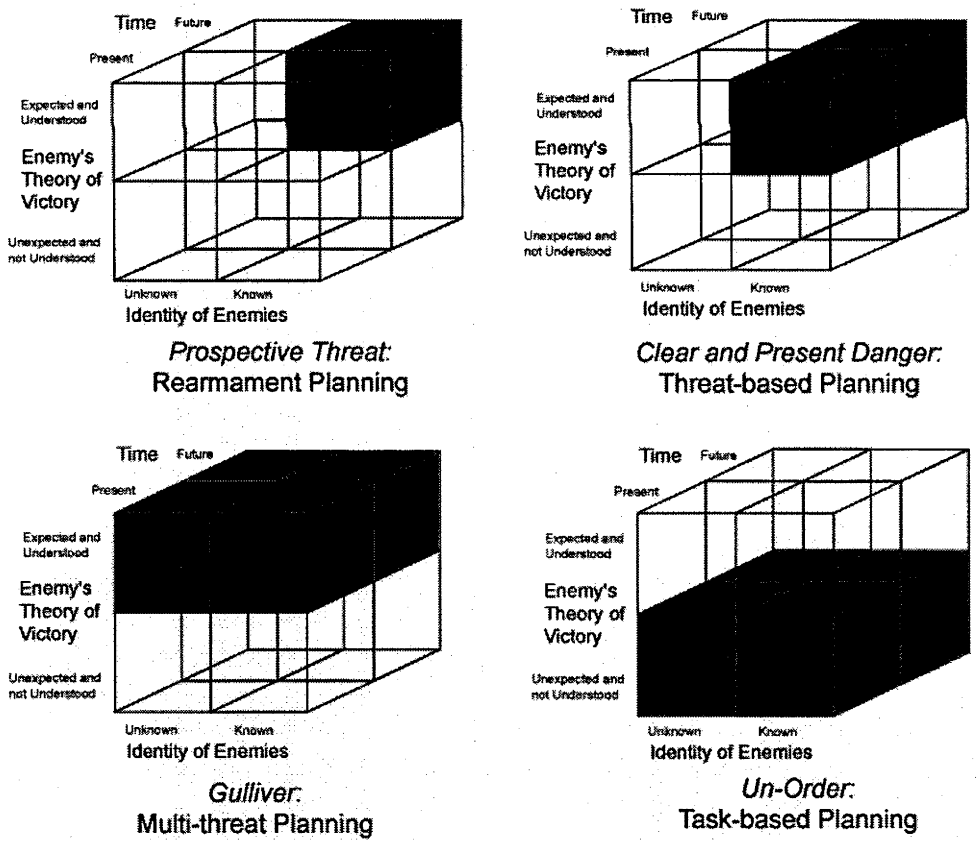
[386] See Section 5.1.1 for a more elaborate discussion of timelines in relation to strategic risk.

reason why they should not consider, out of precaution, at least some states to be their enemies (for the purposes of defence planning only, of course). Even if there is insufficient information to identify those states that one is more likely to come into conflict with than others, outside the peculiar world of (some) international relations theory, no two states are alike. There will therefore always be some that are more menacing due to their relative economic potential or geographic location, and thus there will always be a case for precautionary judgments. Furthermore, this argument can also be justified if made within the top or bottom layer of the risk cube, i.e. that a state will not face prohibitive risk from unknown enemies using unexpected (or expected) theories of victory if it does not face known enemies who pose a threat of similar nature. This third assumption leaves 35 possible combinations.

Fourth, one can assume that if a state sees itself confronted with known enemies only, these will not all have unknown theories of victory. In other words, if a decisionmaker has enough information to enumerate all states that have to be considered enemies and can exclude all others from consideration as a threat, that information can be assumed to be sufficient to say that at least some of these identified enemies will behave and fight in ways that are understood. This last assumption leaves only 28 remaining combinations.

5.3.2 Ideal Risk Patterns and Theories of Victory

FIGURE 23: FOUR IDEAL STRATEGIC RISK PATTERNS



Several of the remaining risk patterns differ only marginally from each other (primarily in terms of future risk, as there are only eight types of present risk left), and most are combinations of other, more basic patterns. It is, therefore, possible to identify four basic *Idealtypen* of risk patterns that are of particular interest (Figure 23): An

anticipated *Prospective Threat* in the future; a *Clear and Present Danger* in the present; a multitude of potential enemies that tie down *Gulliver*; and a situation of uncertainty, change and *Un-Order*. Not only do they and their combinations define risk patterns that seem to directly or at least approximately capture the experience of most states throughout the times, they are also internally coherent and require very different methods to treat strategic risk.

FIGURE 24: INFERENCE AND IDEAL RISK PATTERNS

		Information on Enemy Theory of Victory		*Reasoning to Reduce Complexity and Scope of Requirements*
		High	*Low*	
Threats	*Few and Known*	Clear and Present Danger: **Threat-based Planning**	Prospective Threat: **Rearmament Planning**	-
	Many and Unknown	Gulliver: **Multi-Threat Planning**	Un-Order: **Task-based Planning**	Inductive
Theory of Victory		Developed in advance	Cannot yet be specified in detail	
Reasoning to Define Individual Requirements		Deductive	Abductive	

These four ideal risk patterns differ significantly in the amount and reliability of information that is available on strategic risks. But as discussed in the previous sections, this has repercussions for the extent to which requirements can be discounted by warning- and reaction times, and which kind of inferential method can be used to determine them in the first place. In order to analyse the way in which codification can lead to requirements for each of the four ideal risk patterns, it is thus helpful to distinguish them according to whether the reliable information available on the enemies' theory of victory is large (*Clear and Present Danger* and *Gulliver*) or small (*Prospective Threat* and *Un-Order*), and whether it is necessary to deal with one or few known enemies (*Clear and Present Danger* and *Prospective Threat*), or a large number of actual or potential ones (*Gulliver* and *Un-Order*) (Figure 24).

If information about the enemy's (or enemies') theory of victory is reliable and comprehensive, the capabilities as well as the way in which these would most likely be employed can be considered known. On the basis of this information, it is then possible to argue deductively and to derive specific requirements that would need to be fulfilled to foil the enemy's plans and further one's own goals. These requirements are thus derived from a detailed theory of victory developed in advance (see Section 2.1.5), i.e. a detailed conception of how and why a given tactical effort with given forces against a given enemy would ultimately lead to strategic success in furthering political goals. In other words, there is sufficient information available to use net assessment methods to determine the degree to which one's baseline forces or proposed additions are adequate for dealing with the enemy's capabilities and theory of victory. Requirements that are deductively inferred from a comprehensive and reliable body of information on the enemy can be fairly specific and made with a confidence that is directly proportional to the confidence placed in the information they are based on. Since indicators for

warning can be reliably defined, warning times are generally available and requirements to reduce the impact of surprises can be specified with a reasonable degree of certitude. Tactical and strategic warning both reduce the extent to which specific provisions have to be made to deal with undetected or unexpected enemy actions. Both *Threat-based Planning* to deal with a *Clear and Present Danger*, and *Multi-Threat* Planning to deal with *Gulliver* fall into this category (See the left column of Figure 24).

All of this is however not the case in situations in which reliable information about the enemy is scare. Here, what is known about one's own capabilities, intentions and various dimensions of strategy becomes the only reliable basis for inference, which has to take an abductive form. When the details or even the nature of the enemy's technological, tactical, operational and strategic challenge are unknown, it is not possible to develop a full theory of victory to defeat them in advance. Instead, the defence effort (or, one might say, *ex-ante* theory of victory) has to limit itself to develop the means from which such a more detailed theory of victory can be built, once a risk becomes clearer or even materializes. Both *Rearmament Planning* to treat a *Prospective Threat*, and *Task-based Planning* to deal with *Un-Order* fall into this category. (See the right column of Figure 24).

If there is only one main risk to be treated, no further inductive step is required to define requirements. On the basis of the good informational basis, *Threat-based Planning* can thus use direct risk treatment to reduce the threat's probability and consequences. In all other cases, the insufficient informational basis prevents such a direct approach. The *ex-ante* theory of victory must thus use indirect risk treatment methods (see Section 4.1.4). As engineering approaches these are only indirectly transferable into the defence planning context, but *Rearmament Planning* would indeed concentrate on preparing one's own capabilities (a 'reagent' approach).

In situations of *Gulliver* and *Un-Order*, the large number of actual or potential enemies makes it necessary to reduce the complexity and scope of requirements that would result if each of them would be considered separately. On the basis of inference, known threats can thus, for example, 'typed' into similar categories, under the assumption that a similar threat would require a similar response. *Multi-Threat Planning* would thus concentrate on such types of enemies (an 'agent' approach). As information about threats is however still lacking in a situation of *Un-Order*, *Task-based Planning* must concentrate on the generation of knowledge and use an 'adaptive' approach to incorporate new information. In the following four sections, each of the four risk patterns and corresponding defence planning concept will now be summarized and discussed in more detail.

5.3.3 Rearmament Planning

The first ideal risk pattern, *Prospective Threat*, consists of one prohibitive risk in the future from a known enemy. The absence of any prohibitive risk in the present indicates that such patterns are associated either with a generally stable regional or even global international system and balance of power, and/or such a margin of superiority in the present that no other state dares to or is capable of initiating hostile acts. In either case, it also indicates that the decisionmakers have high confidence in their ability to detect and understand risks, since they did not judge it necessary to take precautionary preparations for present threats. Future risk that would be consistent with such a stable and well understood situation must thus be caused by a known enemy and a way of

seeking strategic effect that is understood in principle, yet because of its future nature not known in detail.

Details about the future threat are thus still scarce, and while it is judged to take a reasonably well understood form in terms of technology, tactics, and strategy should it materialize one day, the general lack of information does not allow a deductive analysis as a basis of defence planning requirements in a framework of *Rearmament Planning*. Instead, abductive analysis has to be used that (implicitly) departs from an assumed failure to achieve one's political goals. Based on two main argumentative pillars, geography and one's own capabilities, it is then possible to infer enemy actions that might have led to such a situation. Geography is a reliable basis for inference since the position of the enemy relative to one's own territory and areas of interest is known. Projecting physical force over long distances and terrain obstacles inevitably requires physical effort and poses fundamental challenges in terms of logistics and military operations that can be assessed with relatively high confidence. Since the enemy's way of seeking strategic effect is expected to take a form that is fairly well understood, the same is true for the effect that one's own capabilities would have on the adversary's planning in peacetime and operations and tactics in wartime.

However, reasoning of this kind can, by its nature, only describe possibilities, and there is thus a need to identify those future threats that are not only possible, but also probable or plausible. Intelligence information that is available on the (potential) enemy will, however, provide a strong case for assessing whether the assumed course of action is feasible for the adversary. Existing capabilities of potential enemies and the strategic warning times that can be assumed for the development of additional capabilities have to play a major role (as mentioned above, a situation of *Prospective Threat* is consistent only with a fairly well understood international order that is conducive to provide good warning indicators).[387] All in all, a situation of *Prospective Threat* thus gives reasonable confidence regarding the nature and type of possible future requirements, but their relative quantity in the force structure and the time by which they might be needed are yet unknown, since they depend on the potential enemy's future moves. A theory of victory to treat that future risk will thus concentrate on the management of the 'reagent' or one's own forces: The enemy's capabilities as such only indirectly influence that theory, as the focus lies on maintaining the capability to produce a balanced force structure in the future.

The main way of treating this kind of future risk is through options, which allow deferring the second-stage investment to the time when strategic warning of a then-present risk is received, and more information regarding detailed requirements thereby becomes available. Platforms in the current force structure will therefore be optimised for the qualitative growth potential that they provide, for example by fitting them for, but not with the latest technology generation. Specific technical requirements that need to be fulfilled in the present are relatively imprecise, can be primarily related to the development of doctrine and of a trained cadre of personnel, and be selectively traded

[387] For a discussion of the role of both factors as a basis of abductive Australian defence planning, see Thomas-Durell Young, 'Capabilities-Based Defense Planning: The Australian Experience,' *Armed Forces & Society*, vol. 21, no. 3 (Spring 1995), pp. 349-369, also published in a shorter version as Thomas-Durell Young, *Threat-Ambiguous Defense Planning: The Australian Experience* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 1993). However, the concept described there does not fully coincide with the ideal concept outlined here, since it does not deal with future threats proper.

for cost with relative ease. There is, therefore, no reason to divert from the 'grand-design' model of acquisition, although considerations regarding the maintenance of an industrial base capable of adapting existing systems, as well as producing new ones, will feature relatively prominently.

FIGURE 25: FOUR IDEAL DEFENCE PLANNING METHODS

		Rearmament Planning *(Prospective Threat)*	***Threat-based Planning*** *(Clear and Present Danger)*	***Multi-Threat Planning*** *(Gulliver)*	***Task-based Planning*** *(Un-Order)*
Risk Pattern	*Number of threats*	One or few	One	Many	Many
	Enemy's Theory of Victory	Not known (because in future)	Understood	Understood	Not Understood
	Risk at which time?	Long-term	Short and long-term	Short and long-term	Short and long-term
Theory of Victory	*Specificity / Level of Detail*	Not specific (future risk)	Specific	Specific to classes of risk	Not specific
	Risk Treatment Approach	Preparation of own forces ('reagent')	Direct risk reduction	Management of types of threat ('agent')	Adaptive
Codification and Requirements	*Main Inference*	Abduction / Geography	Deduction / Net Assessment	Deduction / Net Assessment	Abduction / Own Forces
	Reduced by	-	-	Induction / Expectations regarding concurrency	Induction / Experience regarding nature of war
	Defined through	Analysis of geography and warning times	Theory of victory	Categorization and judgment regarding concurrency	Physics and nature of war
	Concentrated at which time?	Long-term	Short and long-term	Short and long-term	Short-term (since no warning can be expected)
Force Structure	*Characteristic sought*	Options	Hedging	Portfolio	Flexibility
	Platforms	Growth potential	Specialized	Modular or Multi-Role	Multi-Role or Modular
	Technical specifications	Imprecise, but precise ones must be fulfilled in the future	Precise and must be fulfilled	Precise and must be fulfilled	Imprecise and can be traded for cost, time, or experience
	Development and procurement approach	Grand design with special consideration for industrial base	Grand-design	Grand-design with surge production	Evolutionary acquisition, spiral development

5.3.4 Threat-based Planning

The second ideal risk pattern consists of a prohibitive risk, in the present, from a known enemy with a known theory of victory. Depending on the innovativeness of the enemy, prohibitive risks in the future might also include unknown ways of war and capabilities by the same enemy. However, the overall risk pattern is characterized by a situation that does not involve much informational uncertainty since it is dominated by a present *Clear and Present Danger*, which is known and has to be met. The number of detailed varieties in which the threat could materialize is thus relatively small, making it possible to use *Threat-based Planning*. Furthermore, since the terrain, tactics and doctrine, technology, capabilities and political implications are generally understood, the requirements to treat strategic risk can be deductively defined in a very detailed and specific manner. They flow directly from the application of net-assessment methods to the theory of victory, and are therefore precise, coherent (in the sense that they are derived from one scenario or threat), can be made with a relatively high degree of confidence, and treat risks directly. There is thus no need for the more indirect precautionary approaches.[388]

In such a situation, the force structure will thus be optimised to execute the theory of victory against the given enemy, and hedging is the tool of choice. Units as well as platforms are specialized for their roles and designed to fulfil precise technical specifications. The introduction of new systems can be structured along the grand-design approach of consecutive development, testing and production—systems that do not fulfil requirements yet are known to be deficient in combat and there is, therefore, generally no reason to introduce them prematurely.[389] Future risk will be considered through pre-planned block upgrades that allow taking the expected development of the enemy's capabilities into account. If options are used, for example in the form of industrial surge capacity or reserve units, the reason are the savings that they can provide. The associated choices are not important, given the precise requirements that will need to be fulfilled, and second-stage investments (in the form of surge production or call-ups of reserves) can be planned with great detail in advance.

5.3.5 Multi-Threat Planning

The third ideal risk pattern, called *Gulliver*, consists of a multitude of threats from known and unknown enemies, all of which are however using theories of victory that are fairly well understood. In contrast with the previous two patterns, which are dominated by one or at least a very small number of enemies, this one is characterized by a large number of potential threats. All of the potential enemies are source of strategic risks, which are not however expected to necessarily realise themselves at the same time. Herein lies the main characteristic of the defence planning concept of *Multi-Threat Planning*. Of all four ideal risk patterns, the situation of *Gulliver* is closest to strategic overstretch: If there are more unequivocal actual and potential threats than can be simultaneously met with available resources, politicians are generally called upon to

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[388] This is by no means meant to imply that even in such a situation the possibility of surprise would not be a problem—as, for example, Richard Betts has cogently discussed for the NATO case (Betts, *Surprise Attack: Lessons for Defense Planning*). However, surprise here is more likely to be due to incertitude than ignorance, and its overall importance needs to be seen relative to the other cases discussed in this thesis.

[389] This does not mean, however, that the acquisition process should proceed at a leisurely pace.

reduce their country's exposure by limiting commitments, accommodating differences or seeking help from new allies.

Although the information available on each potential threat is probably less comprehensive than in the situation of *Clear and Present Danger*, since attention has to be paid to a larger number of actors, net assessment-based requirements for strategic success against any one of the potential enemies can however still be defined with relative ease.[390] But when a decision on how to treat a given risk is made, opportunity costs in a situation of *Clear and Present Danger* only arise between the treatment of strategic risk on the one hand and other, civilian uses of resources on the other hand. In the case of a *Gulliver* risk pattern, the situation is different since trade-offs must be made between the treatment of different strategic risks as well. The treatment of some risks may require certain specific capabilities, a need which will act as an additional constraint on the optimisation of force structures for other contingencies. A fundamental theorem of optimisation mathematics is that it may be necessary in such a situation to reconsider the whole problem on its own terms, rather than to simply apply new restrictions on the unrestricted best solution.[391] In other words, it is not possible to simply downscale and combine the best treatment of each individual strategic risk, but instead the whole risk pattern has to be considered as one coherent problem that needs to be treated as a whole. This can lead to 'second-best' solutions for individual contingencies that can be quite different from those that would be adopted for each risk on its own terms.

Since it is not known who among the number of potential enemies will become an actual enemy in the future, the main problem in *Multi-Threat Planning* is to balance the large number of requirements that, although fairly well known, are too large to be met simultaneously.[392] The challenge is to reduce the complexity and scope of the requirements to a size that can be handled with available resources, and the main problem is one of significant uncertainty regarding *which* of the possible threats will materialise in the end. Two complementary approaches can be used to deal with this type of uncertainty, which prevents the direct treatment of each specific risk: A theory of victory for dealing with classes or types of enemies ('agent' management), and inductive reasoning during codification.

Since enemies are reasonably well understood in the situation of *Gulliver*, it is possible to develop the requirements to deal with them from the information available on their capabilities and theories of victory. Risk treatment as agent or enemy management can be based on the assumption that threats of a similar kind require responses based on similar capabilities (such as counterinsurgency capabilities, defence of Sea Lines of Communication (SLOC), conventional combined arms operations, or nuclear deterrent forces). The extent to which these different capabilities—which are not specific to one enemy but able to 'manage' a threat by any of them—have to be provided is ultimately based on a judgment regarding the degree of concurrency of similar threats that has to

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[390] Paul K. Davis proposes to use a 'scenario space' to account for this type of uncertainty. See Davis, 'Protecting the Great Transition,' pp. 135-164.

[391] R.G. Lipsey and Kelvin Lancaster, 'The General Theory of Second Best,' Review of Economic Studies, vol. 24, no. 1 (1956-1957), pp. 11-32.

[392] The Royal Navy was for a long time able to evade the difficulty of the 'Gulliver' type situation since it had the resources to simply assume war with the next two biggest navies, converting the problem into one of 'Clear and Present Danger.'

be expected. In some situations, information on the propensity of actual and potential enemies to take advantage of one's occupation elsewhere can be used to make that judgment. However, it will usually be primarily based on inductive reasoning on the basis of history, i.e. experience.

The treatment of such a multitude of well defined risks requires a portfolio of forces optimised against a basket of several well-defined types of threats.[393] Platforms will thus tend to be multi-role or even modular, in order to fulfil a number of different sets of requirements that are precisely defined in their technical specifications, since they are derived from complete theories of victory to deal with particular classes of enemy. The acquisition can thus also be expected to follow the grand-design model, but the option of industrial and personnel surge will be more important than in the *Threat-based Planning* method, in order to deal with an unexpected number of concurrent operations.

5.3.6 Task-based Planning

The fourth ideal risk pattern to be discussed here is that of a situation in which a state is again faced with a multitude of enemies, who however use theories of victory that are unexpected and not well understood. This pattern is called *Un-Order*, meaning not the absence of order but a type of order that does not conform with one's experience (like the not living, nor dead 'un-dead' horror characters).[394] A situation in which a state's decisionmakers do not understand their enemies is obviously one of a great potential volatility, and it is most likely that enemies of both known and unknown identity pose prohibitive risk.

While the main difficulty in a risk pattern of *Gulliver* lay in the need to balance various risks, these risks and their treatment were at least fairly well understood. The situation here is different, and the difficulty of treating a multitude of risks is compounded by the fact that it is not obvious how each individual risk could be best reduced in the first place. There might be some consolation in the fact that such periods of large uncertainty are most likely to be only transitory, until order re-establishes itself or experience and research elucidate the new environment and ways of dealing with it. However, this transitory nature might only be evident to later historians, and a new order is also often associated with a new power that is able to impose it—an ominous prospect for those who enter the 'dark age' as a still dominant player. Arguably, aspects of *Un-Order* confront the United States and many of its allies since 9/11, if not since 1991.[395] It is for these times of *Un-Order* that the concept of *Task-based Planning* is required.

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[393] See, for example, Paul K. Davis, Gompert, and Kugler, *Adaptiveness in National Defense: The Basis of a New Framework.* A more detailed methodology that could be used for such a task is described in Richard J. Hillestad and Paul K. Davis, *Resource Allocation for the New Defense Strategy: The DynaRank Decision-Support System* (Santa Monica: RAND, 1998).

[394] This use of the word Un-Order has been borrowed from Kurtz and Snowden, 'The new dynamics of strategy: Sense-making in a complex and complicated world.'

[395] See for example National Intelligence Council, *Mapping the Global Future* (Washington D.C.: Government Printing Office, 2004), which presents a view of the future that is highly consistent with the 'quad-chart' reproduced in Figure 7 (See Flournoy, 'Did the Pentagon Get the Quadrennial Defence Review Right?', pp. 70-71. For an earlier but similarly influential study, see Joseph A. Engelbrecht, Robert L. Bivins, Patrick M. Condray, Merrily D. Fecteau, John P. Geis and Kevin C. Smith, *Alternate Futures for 2025: Security Planning to Avoid Surprise* (Maxwell, AL: Air University, 1996). See also

Since the identity of enemies is often not known yet, and threats are not well understood regarding the technology, tactics, or general ways used to seek strategic effect, specific requirements are not known in any detail, and the basis of reliable information that can be used for inference is very small. There are, however, two areas in which information is available, and which can be used to infer scenarios on an abductive basis: One's own capabilities as they exist in the baseline structure, and the nature of war as a physical contest between two opposing wills. Wylie writes that

> *The ultimate determinant in war is the man on the scene with the gun.* This man is the final power in war. He is control. He determines who wins. ... [I]f the strategist is forced to strive for final and ultimate control, he must establish, or must present as an inevitable prospect, a man on the scene with a gun.[396]

The defence planner's task in a situation of *Un-Order* is thus, at its most basic level, to define those tasks that would allow him to put 'men with guns' into places where they could exercise control over the enemy, or to prevent the enemy from doing the same.[397] It is known that moving these men with guns requires physical effort, and that overcoming the enemy's resistance does so, too. Therefore, it is still possible to define core tasks—hence the label *Task-based Planning*—that the defence force must be able to accomplish even in the face of the enemy's opposition, which, whatever form it will take, must at least conform with the same physical laws.[398] In very general terms, capabilities that would be required are thus, for example, the protection of troops against kinetic effects, the movement of men and material independent of whatever infrastructure or supplies are available locally, the ability to communicate with dispersed units, the ability to gain intelligence about the enemy, the ability to bring kinetic energy of various amounts upon identified targets of various natures, and the preservation of local air and naval superiority. Often, these capabilities can be described in a more detailed form if additional information about the geopolitical situation is taken into account.[399]

Michael Fitzsimmons points out that it is especially important to maintain analytical rigour and transparency if uncertainty is judged to be high: A general belief in the prevalence of uncertainty can otherwise encourage decisionmakers to reject any prediction based on analysis of available data, and thus increase rather than decrease the influence of rigid preconceptions. He is also correct in mentioning the importance of making use of those aspects of future threats that are known, little as they may be[400]—

Collège Architectes de systèmes de forces-Officiers de cohérence opérationnelle (DGA/EMA), *Synthèse du plan prospectif à 30 ans* (Paris: Ministère de la Défense, 2005).

[396] Emphasis in original. Wylie, *Military Strategy: A General Theory of Power Control*, p. 72.

[397] It is, of course, somewhat paradoxical that historical experience should be most important if the present and future seems most unfamiliar. For a discussion of this point, see Eliot A. Cohen, 'The Historical Mind and Military Strategy,' *Orbis*, vol. 49, no. 4 (Fall 2005), pp. 575-588.

[398] For an early formulation of this idea, see Clark A. Murdock, 'Mission-Pull and Long-Range Planning,' *Joint Forces Quarterly*, no. 6 (Autumn/Winter 1994/95), pp. 28-35.

[399] See for example the list in Paul K. Davis, *Analytic Architecture for Capabilities-Based Planning, Mission-System Analysis, and Transformation* (Santa Monica: RAND, 2002), p. 20.

[400] Michael Fitzsimmons, 'The Problem of Uncertainty in Strategic Planning,' *Survival,* vol. 48, no. 4 (Winter 2006-07), esp. pp. 131-136.

they could, for example, be used to prioritise between, or even rule out, some of the abductively postulated risks. For *Task-based Planning* to succeed, it is thus important to make explicit use of abduction, with all the caveats that are both the strength and weakness of this inferential method to define possibilities.[401]

Overall, however, requirements can only be inferred with a very high degree of abstraction, which has two important consequences compared with other defence planning concepts (especially those where information regarding the enemy is high): First, there is usually no logical basis, other than precaution or the prevention of obvious vulnerabilities, for specific detailed technical requirements, since the threat that they will face is uncertain to begin with. Other parameters, such as the cost of fulfilling a requirement, can thus play a relatively more important role in deciding where to spend a marginal dollar. Second, there is significant uncertainty whether the implemented solution will be up to the (yet unknown) challenge. Redundancy through capabilities based on different and independent systems, which will not suffer from the same vulnerabilities, is thus especially valuable here, while it would usually be regarded as wasteful if the information that is available on the enemy is comprehensive.[402]

Since there are strategic risks in the present that need to be met, the interaction with these present enemies, known or yet unknown, will provide additional information that can be used to infer more specific requirements. The aim of the theory of victory will thus be, to some extent, to use 'adaptive' approaches in the sense that specific moves on one's own part, or specific capabilities, can be used to 'explore' the enemy's reactions, or any other way in which the defence planning challenge can be elucidated. Of all four ideal concepts, defence planning here is closest to the conduct of an experiment with the aim of generating new information, and consequently requires a particularly open mind and willingness to discard old solutions.

In general, it is thus much less certain and also much less probable in these situations that the defence preparations that are optimal *ex-ante* will turn out to have been so *ex-post*. Indicators, which are central to intelligence warning systems, cannot be defined with the necessary certitude as there is no clear indication of what exactly to look for. Reliable tactical warning is thus impossible to achieve, and even strategic warning can be hampered if the ability to make sense of observed developments is limited. Given the small amount of information available on strategic risks, it is thus especially important here to prevent surprise attacks from being conducted in a way that could cripple the defence, rather than trying to evade them altogether. Ceteris paribus, requirements to treat strategic risk thus tend to be greater than if the informational basis of planning is good, as they must take account of the need to prepare for unexpected as well as identified threats.

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[401] Davis and Khalizad point out the similarity of 'Mission-Pull' planning and deductive, largely top-down 'Objective-based' planning. (Davis and Khalilzad, *A Composite Approach to Air Force* Planning, p. 27). However, since the logical basis for the definition of tasks is a different one, the confidence with which more detailed requirements can be defined is significantly different as well.

[402] Of course, redundant capabilities always complicate enemy planning. But the point is that in a framework of 'Threat-based Planning,' the difficulty that retaining these capabilities causes for the enemy is relatively precisely known and, in the end, part of the operational theory of victory. In a framework of Task-based Planning, redundant capabilities for the implementation of core tasks become an end in themselves.

A force structure that can treat this kind of strategic risk must necessarily be a flexible one—there are no requirements precise enough to allow hedging to be used, and the need to be already prepared in the present for future risks reduces the applicability of options. The confidence with which strategic success can be expected with these preparations will, however, always be uncertain, and this will tend to lead to higher desired force levels out of precaution (which can also be used to deal with the strategic surprises that are likely to occur). It follows that *Task-based Planning* is unlikely to be a cheap way of structuring a defence capability. In order to be flexible, platforms are likely to be multi-role capable or modular, and there are few reasons not to trade specific technical requirements for reduced cost, earlier fielding or operational experience with new systems. Evolutionary acquisition and spiral development, without clearly delineated development, testing and production phases, is therefore the acquisition method best suited for this kind of situation.

In summary, this chapter has discussed how political guidance must be codified into strategic guidance. Intelligence information regarding the threat, dimensions of strategy as relating to one's own side, and the theory of victory are brought together in this step. But in order to define requirements over time, these need to be 'discounted' through the use of tactical or strategic warning and reaction time considerations. The available information will only sometimes allow deductive inference. Otherwise, abduction must be used, and in either case induction can reduce the complexity and scale of requirements. These requirements then must be fulfilled by a force structure. Depending on their specificity, hedges, options, portfolios, or flexibility will be emphasized at the level of the overall force structure, and of individual capabilities and platforms. Together with some considerations regarding four basic, coherent risk patterns, the considerations outlined above can be used to define the four ideal defence planning concepts *Rearmament Planning, Threat-based Planning, Multi-Threat Planning,* and *Task-based Planning*. The second part of this thesis will now use eight exemplary case studies to illustrate these four ideal concepts.

PART II:

PRACTICE

A REMARK ON NORMATIVE THEORY AND EXEMPLARY EVIDENCE

As mentioned in the introduction, this thesis is normative in nature. This has direct implications for the use of logical approaches that would be less defensible in a positive (i.e. descriptive) theory. Samuel P. Huntington writes that

> People sometimes argue that military policy involves the determination of the military programs and actions required to implement a given set of national goals. National policy ... is decided first, and military policy then follows, subordinate to the more "ultimate" goals of higher policy. This image is a logical construct of what people think military policy ought to be. It is an image, however, which has little basis in fact. ... Military policy ... is the result of politics not logic, more an arena than a unity.[403]

This is of course a valid point in the case of studies that have an overall positive character and deal with the policy process as it occurs in reality. However, it is not applicable to a study such as this one, which is mainly normative in nature and only concerns itself with what the policy process and outcomes *should* be, not how they would be brought about. Every normative theory is, of course, at its most fundamental level based on statements of a positive nature. Nevertheless, these are central to theories that try to explain real phenomena (i.e. those with positive aims) in a way that they are not to a normative theory (at least as long as it does not claim direct, Jominian applicability).

Hans Albers reminds in a blunt yet salutary warning that "all epistemic certainties are self-constructed and thus worthless for the comprehension of reality."[404] Although final proof of the universal validity of a theory is impossible, empirical testing of falsifiable hypotheses derived from it can lead to its (provisional) acceptance.[405] On the basis of its power of explanation, it is then also a means for prediction.[406] But what is being empirically tested in the case of a normative theory is always the positive underpinning, which explains why behaviour in accordance with the recommended actions leads to greater success or satisfaction, however defined, than behaviour not in accordance with it. The normative part, primarily the definition of success or failure, is value-based and not a part of objective, testable reality.

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[403] Huntington, *The Common Defense: Strategic Programs in National Politics*, p. 2.

[404] Translation by author. Hans Albert, *Traktat über die kritische Vernunft* (Tübingen: J.C.B. Mohr, 3rd revised edition, 1975),p. 30.

[405] Karl R. Popper, *Logik der Forschung* (Tübingen: J.C.B. Mohr, 3rd revised edition, 1969), pp. 6-8.

[406] Hans Albert, 'Theorie und Prognose in den Sozialwissenschaften,' in *Logik der Sozialwissenschaften*, ed. Ernst Topitsch (Cologne: Kiepenheuer & Wisch, 3rd edition, 1966), p. 130-131. The validity of a prediction is, however, limited to the initial conditions applied to the theory. Social science theories thus cannot be used for historical prophecy, since society develops as a whole and these conditions, which by definition lie outside the area explained by the theory itself, can change. Karl R. Popper, 'Prognose und Prophetie in den Sozialwissenschaften,' in *Logik der Sozialwissenschaften*, ed. Topitsch, pp. 116-118

In the area of public economics, for example, the validity (or at least completeness) of normative theories of government can thus be tested by empirically comparing the relative importance of market and state failures, respectively.[407] Economics is, however, an area in which a multitude of similar and quantifiable situations can be subjected to statistical analysis under ceteris-paribus assumptions. But due to the nature of the research topic, the unavailability of data, and the strong influence of idiosyncrasies and path-dependence in defence planning, the theory developed in this thesis needs to be tested in a qualitative way.[408] As defence planning is an area in which "boundaries between phenomenon and context are not clearly evident,"[409] it is best analysed in an individual case study approach. Testing normative theories with case studies is, however, anything but straightforward as the aim is not to explain observed behaviour, but to make a statement regarding its appropriateness or effectiveness.

In many respects, the problems faced by this thesis are similar to those confronted by philosophers of science looking for criteria to decide on the relative merits of scientific methods: In general, idiosyncrasies are so great that case studies cannot be construed as controlled tests.[410] Analysing the outcome of observed behaviour in a case study thus does not in and of itself give conclusive information on whether it was the result of particular factors or of the issue to be analysed. The *use of counterfactuals* in an 'intuitionist' approach has obvious attractions not only to philosophers, but *fails to solve this problem as it would not provide a basis to question the intuitions involved, which directly relate to the normative issue in question.*[411] There is unfortunately no methodologically satisfying answer to this problem yet. The crux of the issue is the following question: Should a divergence of observed behaviour from that recommended by the theory lead to the rejection of the theory, or to the rejection of the behaviour observed? Daniel Baumslag writes, in the context of normative theories of science, that the question is

> how we can check whether a scientist's behaviour was indeed justified. The simplest way of doing this, showing that what the scientist did was consistent with certain widely accepted scientific norms, is not available to us, since we are here dealing with cases in which the norms and the action diverge. But there are frequently other ways of deciding whether a given approach is justified. ... [W]e can draw on rules of rationality and practical reasoning which are not purely scientific, but which constitute generally acceptable principles of rational behavior [sic!]. ... So we can often decide whether a given scientists' [sic!] arguments were justified. A more difficult question is how these

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[407] Joseph J. Cordes, 'Reconciling Normative and Positive Theories of Government,' *American Economic Review*, vol. 87, no. 2 (May 1997), pp. 169-172.

[408] For an overview on qualitative research methods, see John W. Creswell, *Qualitative Inquiry and Research Design: Choosing Among Five Traditions* (Thousand Oaks, CA: SAGE Publications, 1998).

[409] Robert K. Yin, *Case Study Research: Design and Methods* (Thousand Oaks, CA: SAGE Publications, 3rd edition, 2003), p. 13.

[410] See David Baumslag, 'Choosing Methods,' *Ratio*, vol. 14, no 2 (June 2001), pp. 121-124.

[411] Larry Laudan, 'Some Problems Facing Intuitionist Meta-Methodologies,' *Synthese*, vol. 67, no. 1 (April 1986), pp. 115-129.

> wider principles are to be justified, but this is one for general philosophy rather than philosophy of science to answer.[412]

This seems to be the best approach to validating the theory proposed in Part I, and will be the approach taken in this thesis (knowing, of course, that given the uncertainty inherent in a risk management situation the course of action that is correct *ex-ante* will usually not be so *ex-post*).

There is, however, the additional problem that no comparable normative theory exists. In the absence of an alternative theory, the null hypothesis to be tested would therefore be that there is no valid normative framework for defence planning that transcends time and geographical, political and technological contexts at all, and that the appropriateness of a defence planning decision is determined by the particular circumstances of that decision alone. However, due to the problems discussed above, showing that defence planners in different circumstances but facing similar risk patterns behave in similar ways would *not* be proof for either, as it is evidence for positive behaviour, not the validity of normative recommendations.

It is, therefore, necessary to relax the strict demands of social science methodology regarding the testing of theory, and instead use examples to demonstrate rather than prove the theory developed in this thesis. With Gray, the author believes that in the applied area that strategic studies is, intellectual constructs are "more or less useful rather than true or false."[413] Demonstrating how the theory can illuminate, and be illuminated by, historical examples can make it both more useful[414] and provide a 'test' at the same time—although the methodological problems mentioned above must relegate this aspect to second place. The choice of examples can, however, still be informed by methodological recommendations on the choice of case studies. They should therefore provide theoretical replication, on the basis of different initial conditions, and at the same time cover periods that are long enough to argue on the basis of multiple-in-case congruence, i.e. the covariance between observed predicted variables over time, as well as causal process tracing.[415] In other words, the examples used to demonstrate the theory developed herein should both cover a variety of risk patterns, as well as analyse the same countries over time in order to eliminate the influence of geography, culture and other idiosyncrasies. All of these points have been taken into account in the case study selection, as discussed in Section 1.4.

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[412] Daniel Baumslag, 'How to Test Normative Theories of Science,' *Journal for General Philosophy of Science*, vol. 31, no. 2 (December 2000), pp. 271-272.

[413] Gray, *Strategy for Chaos*, p. 17.

[414] Arguing by historical example is, of course, not without danger in an applied field, as discussed in Richard E. Neustadt and Ernest R. May, *Thinking in Time* (New York: The Free Press, 1986). The purpose here is, however, an indirect one as it is not the aim to propose direct analogies, but to demonstrate how the theory applies in different situations—one might say to appeal to Cohen's 'historical mind.' Eliot A. Cohen, 'The Historical Mind and Military Strategy.'

[415] Stephen Van Evera, *Guide to Methods for Students of Political Science* (Ithaca: Cornell University Press, 1997), pp. 61-67. See also Yin, *Case Study Research: Design and Methods*, pp. 47, 97-101, 116-137. It goes without saying that evidence presented in the examples will need to be verified, as far as possible, through triangulation of sources. See Robert E. Stake, *The art of case study research* (Thousand Oaks, CA: SAGE Publications, 1995), pp. 107-115.

CHAPTER 6:

REARMAMENT PLANNING

Rearmament Planning deals with situations in which a threat is only expected well in the future. The main value of the present force structure thus lies not in what it can achieve in its existing form, but in the basis that it provides (in the sense of an option) for expansion to meet a developing threat. The two examples discussed here are much further removed in time from each other than those in the following chapters. Nevertheless, they demonstrate, through success and failure, respectively, the importance of using immutable geography to shed light on the challenges that may lie ahead.

FIGURE 26: REARMAMENT PLANNING OVERVIEW[416]

Risk Pattern	*Ideal Pattern*	'Prospective Threat'
	Number of threats	One or few
	Enemy's theory of victory	Not known (because in future)
	Risk at which time?	Long-term
Theory of Victory	*Specificity / Level of Detail*	Not specific (future risk)
	Risk Treatment Approach	Preparation of own forces ('reagent')
Codification and Requirements	*Main Inference*	Abduction / Geography
	Reduced by	-
	Defined through	Analysis of geography and warning times
	Concentrated at which time?	Long-term
Force Structure	*Characteristic sought*	Options
	Platforms	Growth potential
	Technical specifications	Imprecise, but precise ones must be fulfilled in the future
	Development and procurement approach	Grand design with special consideration for industrial base

6.1 United States—The Interwar Years 1919-1938

US defence planning between the World Wars did not produce a strategy document akin to the White Papers or Reviews on which most of the other examples are based. However, a reformed Joint Army and Navy Board, or in short 'Joint Board', was re-established in 1919, and began to adapt existing pre-war plans for the new era. This section will thus concentrate on general observations about the US theory of victory and strategic risk, and then look in greater detail at the role of the Colour War Plans in US defence planning. The period under study ends in 1938, when the Colour Plan system

[416] This and the following Figures at the beginnings of Chapters 7, 8, and 9 reproduce the respective columns of Figure 25.

was abandoned and the Joint Board began to prepare for an eventual conflict with the Axis powers.[417]

6.1.1 The American Approach to Warfare

It is easy to forget how much of an aberration the nature of America's engagement with the world over the last 60 years has been, compared with the first century and a half of the country's existence.[418] After that rather embarrassing episode of the War of 1812, the United States was the beneficiary of the largely benign nature of British seapower. For the following decades, it kept the country insulated from the international tensions of the time (small as they were, in any case, compared with the wars of the French Revolution). It also provided the real muscle behind the Monroe Doctrine of 1823, ensuring that the Holy Alliance would not reverse the independence of the former Spanish and Portuguese colonies in the Western Hemisphere.[419]

For close to half a century following their second war against Britain, Americans were thus free to devote their energies to exploring their continent, expand the frontier of settlement further into the West, and begin an increasingly agonizing domestic debate about the 'peculiar institution' of slavery. During that time, the US perspective on military matters strategic and tactical was dominated by the defensive—in the East, in the form of numerous harbour fortifications, in the West, in the protection of white settlers from the Indians. However, this general outlook was pared with a certain, one may say disturbing, ruthlessness in the use of force, which put an end to the sheer existence of numerous Indian tribes along the way, and did not shy from outright aggression when the advance of American settlers spilled into (Mexican) Texas.[420]

In the Civil War, the first great conflict of the industrial age,[421] both sides tried to achieve decision by manoeuvre. However, and perhaps inevitably given the nature of the conflict, the war only ended once the Confederacy had collapsed between the constant grinding away at its Army of Northern Virginia by Grant's Army of the

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[417] See Steven T. Ross, ed., *American War Plans 1919-1941* (New York: Garland Publishing, 1992), pp. ix-xiv (introduction common to all volumes).

[418] For a discussions of US national style in strategy that endured, see Colin S. Gray, 'National Style in Strategy: The American Example,' *International Security*, vol. 6, no. 2 (Autumn 1981), pp. 21-47; Thomas G. Mahnken, *United States Strategic Culture*, Paper prepared for the Advanced Systems and Concepts Office, Defence Threat Reduction Agency, 13 November 2006, p. 7, <http://www.dtra.mil/documents/asco/publications/comparitive_strategic_cultures_curriculum/case%20studies/United%20States%20(Mahnken)%20final%2013%20Nov%2006.pdf> (30 April 2007). For questions relating to US military history, the author regularly consulted Allan R. Millet and Peter Maslowski, *For the Common Defence: A Military History of the United States of America*, revised and expanded edition (New York: The Free Press, 1994). For background on general US history, the following two volumes were used: Udo Sautter, *Geschichte der Vereinigten Staaten von Amerika* (Stuttgart: Alfred Kröner Verlag, 1994), and Paul Johnson, *A History of the American People* (New York: Harper Collins, 1997).

[419] Mark T. Gilderhus, 'The Monroe Doctrine: Meanings and Implications,' *Presidential Studies Quarterly,* vol. 36, no. 1 (March 2006), pp. 5-16.

[420] Peter Maslowski, 'To the edge of greatness: The United States, 1783-1865,' in *The Making of Strategy: Rulers, States, and War*, eds. Williamson Murray, MacGregor Knox, and Alvin Bernstein (Cambridge: Cambridge University Press, 1994), pp. 205-241.

[421] If one disregards the Crimean War, a rather minor engagement in operational terms, compared with what was to follow.

Potomac, and the destruction of its economic and civilian base wrought by Sherman's March from Atlanta to the sea, and up the Carolinas.[422] The American approach to large-scale warfare became one of annihilation or, if necessary, attrition, of the enemy's main military strength—in Virginia, on the Western Front, or the heart of *Festung Europa*—and also of his economic and societal war-making potential—in Georgia and the Carolinas, or Japanese and German cities.[423] Despite the maritime nature of its relation to the rest of the World, the US approach to warfare was aggressive, offensive and large-scale, and did not display Britain's quest for an indirect, limited approach.

Such an approach to the operational level of war rhymed with the American view of war as a political instrument, or rather non-instrument—in the words of the US Army's 1936 textbook on strategy,

> Politics and strategy are radically and fundamentally things apart. Strategy begins where politics end. All that soldiers ask is that once the policy is settled, strategy and command shall be regarded as being in a sphere apart from politics.[424]

American liberal culture regarded war as an aberration from the natural state of affairs, not a purposeful act of state for political aims. Consequently, it was to be rejected out of principle—a quite self-righteous attitude that was allowed to establish itself as a tradition by America's favourable geostrategic location, as Henry Kissinger remarks:

> We have confused the security conferred by two great oceans with the normal pattern of international relations ... A power favoured by geography or by a great material superiority, as we have been through most of our history, can afford to let a threat take unambiguous shape before it engages in war. ... And because many other states had to be attacked long before the threat to our security became apparent, we could always be certain that some powers would bear the brunt of the first battles and hold a line while we mobilized our resources. Thus we came to develop a doctrine of aggression so purist and abstract that it absolved our statesmen from the necessity of making decisions in ambiguous situations and from concerning themselves with the minutiae of day-to-day diplomacy.[425]

Rejection of a Clausewitzian conception of war as a political instrument meant that Americans were reluctant to use force—or, rather, believed themselves to be, since the Indians, Mexicans or Spanish would likely have a different reading of American culture

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[422] On the Civil War, see James M. McPherson, *Battle Cry of Freedom: The Civil War Era* (New York, Ballantine Books, 1988).

[423] Russell F. Weigley, 'American Strategy from Its Beginnings through the First World War,' in *Makers of Modern Strategy*, ed. Paret, pp. 408-443. Weigley's classic *The American Way of War*, based on Delbrück's distinction between attrition and annihilation, has elicited some criticism on its use of these terms of late (see Brian McAllister Linn, 'The American Way of War Revisited,' *Journal of Military History*, vol. 66, no. 2 (April 2002), pp. 501-533.), but this debate is less relevant for the point made here.

[424] *The Principles of Strategy for An Independent Corps or Army in a Theater of Operations* (Ft. Leavenworth, KS: Command and General Staff School Press, 1936), quoted in Mahnken, *United States Strategic Culture*, p. 7.

[425] Henry Kissinger, *Nuclear Weapons and Foreign Policy* (New York: Harper & Brothers, 1957), pp. 8-9.

in this regard.[426] But if they had to wage it, the conduct of war was then unbound by limitations imposed by a political goal—especially if war was, for example, waged 'to end all war'. If the United States did not demand full and unconditional surrender of the enemy who had led them to 'sin' in the first place, it never (before Korea) settled for less than the enemy's full acceptance of peace on US terms. Samuel Huntington writes that "[f]or the American a war is not a war unless it is a crusade,"[427] an approach that allowed the United States to make full use of its material superiority to crush the enemy in wartime. However, it was not an attitude amenable to the open formulation of realistic and detailed politically guided theories of victory in advance to deal with strategic risk.

With regards to major threats, this difficulty was further compounded by the colonial heritage of the, at times somewhat anarchic, militia system in the United States. Although in practice the militia was largely ineffective already at the time of the revolution, as an ideal it remained the dominant form of US military organisation (although largely in the form of the volunteers). Volunteers were essential to raise forces for wartime duty as conscription was only used in the Civil and WWI, and never in peacetime. Various schemes to increase military effectiveness led to a bewildering array of reserve formations at the state and federal level.[428] And mobilization efficiency improved in WWI over that in the conflict with Spain, the United States could not enter major conflict without first undergoing a messy and laborious effort to raise military forces in quantity. Able to rely on strategic warning on the basis of geography; having to raise a citizen army for war; reluctant to contemplate the use of force for political purpose; yet unlimited in its war goals (and commensurate effort) when it did, the United States naturally tended towards a framework of *Rearmament Planning*.

6.1.2 Strategic Risk in the Interwar Years

With the closing of the internal frontier in the 1880s and in line with global navalist fashion, the United States had begun at the end of the 19th century to build a navy more commensurate with its industrial potential. But although the Spanish-American war of 1898 had made the United States an empire with possessions from East Asia to the Caribbean, and the use of military force abroad was to become a regular experience over the years that followed, the country did not create national-level bodies to coordinate security policy. Only the National Security Act of 1947, finally, created

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[426] Samuel P. Huntington makes the interesting observation that Americans generally do not regard the border fighting with the Indians as war, unlike the British perception of imperial policing. Samuel P. Huntington, *The Soldier and the State: The Theory and Practice of Civil-Military Relations* (Cambridge, MA: Belknap Press, 1957), p. 152.

[427] Ibid.

[428] To a large degree, these resulted from the concurrent implementation of largely incompatible Army organisations—professional Uptonians seeking fully trained reserves to round out the federal Army, while proponents of the citizen army aimed for skeleton formations with regular officers (an approach that can be traced to, among others, George Washington) or fully reserve formations with citizen officers (as preferred by Jeffersonians). Since Emory Upton's followers were at odds with American culture, they failed to move the locus of the main strength of the US military from the reserves or volunteers to the standing Army. For a good discussion of the Uptonian and citizen soldier philosophies, see Russel F. Weigley, *Towards an American Army: Military Thought From Washington to Marshall* (Westport, CT: Greenwood Press, 1962), esp. pp. 100-242. The various types of militia, standing forces and volunteers over the years are also well treated in Millet and Maslowski, *For the Common Defence: A Military History of the United States of America*.

institutions comparable to the Committee of Imperial Defence that had guided British defence policy in the period under consideration here. Defence planning largely occurred at the service level—coordinated by the Joint Army and Navy Board, or Joint Board—with limited civilian input, including by the service secretaries. The State Department was wary of involving itself with the military and thought it "inadvisable" to work with Army and Navy planners. Neither it, nor the departments of the treasury or commerce provided geopolitical advice.[429] In the absence of formal political guidance, the US military thus returned to dealing with the same or similar risks that had occupied it before World War I. The Senate's rejection of the League of Nation's treaty, and US non-ratification of the treaty of Versailles, made it abundantly clear that the enforcement of international obligations would not be one of them.

Several strategic risks were present ones, deductively inferable from the geopolitical situation, primarily in the Western hemisphere and Asia. First, these related to traditional roles of the federal military in terms of support to the civil authorities. By the 20th century, both the Indian threat and the post-Civil War administration of the South during the Reconstruction era were over. However, the Army played a major role in strike breaking, and the control of domestic dissent if state authorities, who controlled the National Guard, were unable (or unwilling) to enforce the law.[430] Related to this role were intelligence activities, all of dubious legality but many clearly illegal, that targeted domestic radicals and suspected foreign agents of various sorts.[431]

Second, in terms of border protection, Mexico posed continuing problems. The civil war (or 'Revolution') from 1910 to 1921 had spilled repeatedly over the US border, with attacks motivated by both political and criminal motives. The US had landed at Veracruz in 1914, and the Army under Pershing had led a quixotic expedition in 1916 into Northern Mexico in a vain attempt to find Pancho Villa, who had previously raided American border towns.[432] Instability in Mexico continued well into the 1920s, and flared up again during the *Cristero* rebellion of 1926-1929, a bloody civil war over state repression of the Catholic Church.[433]

Third, the United States had significant commercial interests in Central America and the Caribbean, an area where also significant numbers of its nationals lived. In addition, the Panama Canal had significantly increased the region's strategic importance, which however featured a large number of small independent countries of limited political and economic stability. Consequently, the 1904 Roosevelt Corollary to the Monroe

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[429] Secretary of State Hughes said in 1921 that "I shall cordially avail myself of the opportunity to do so" when asked to cooperate with the Joint Board. Edward S. Miller, *War Plan Orange: The U.S. Strategy to Defeat Japan 1897-1945* (Annapolis, MD: Naval Institute Press, 1991), pp. 11-12; Steven T. Ross, *American War Plans 1890-1939* (London: Frank Cass, 2002), pp. 96-97.

[430] Clayton D. Laurie and Ronald H. Cole, *The Role of Federal Military Forces in Domestic Disorders, 1877-1945* (Washington D.C.: Center of Military History, United States Army, 1997).

[431] Joan M. Jensen, *Army Surveillance in America, 1775-1980* (New Haven: Yale University Press, 1991); Roy T. Albert, *Negative Intelligence: The Army and the American Left 1917-1941* (Jackson: University Press of Mississippi, 1991).

[432] Manuel A. Machado, *Centaur of the North: Francisco Villa, the Mexican Revolution, and Northern Mexico* (Austin, TX: Eakin Press, 1988); John S.D. Eisenhower, *Intervention: The United States Involvement in the Mexican Revolution, 1913-1917* (New York: W.W. Norton, 1993).

[433] Jean A. Meyer, *The Cristero Rebellion: The Mexican People Between Church and State, 1926-1929* (Cambridge: Cambridge University Press, 1976).

Doctrine had claimed that the United States had the sole right and responsibility to exercise the 'international police' function in the Western hemisphere.[434] Until its repudiation in 1934 by the second Roosevelt to become President, it served as the basis for repeated US interventions in Central America and the Caribbean to safeguard American commercial interests and hegemony, both before and after WWI.[435] The United States effectively occupied Nicaragua, Haiti and the Dominican Republic for several years, but while these Caribbean and Central American states were relatively small, the demands placed on the US military had such an operation become necessary in Mexico would have been very significant.

Fourth, the United States had two formal commitments in the Asia-Pacific region. After the Spanish-American war of 1898, it annexed the Philippine Archipelago against the will of most of the local population. What followed was a nasty guerrilla campaign in the new possessions from 1899 to 1902,[436] which cost twice the combat deaths of the 'Splendid Little War' and led to US atrocities especially in its last year.[437] Although the war succeeded in pacifying the Archipelago, a renewed uprising remained a distinct possibility. The second US military task in Asia related to the safeguarding of international interests in China. American gunboats of the Yangtze patrol had policed that river since the mid-19th century, and US forces protected the international settlements in Shanghai and other Chinese ports.[438] China plunged into Civil War and widespread warlordism in the 1920s, and a renewed large-scale uprising against Western powers was a distinct possibility, which would have required an operation similar to the China Relief Expedition (the US contribution to the repression of the Boxer uprising in 1900-1902).

In addition to these present and rather limited risks, one future one loomed large—the danger of a confrontation with Japan over that country's policies in China. Since 1900, the United States demanded both equal commercial access to China, and the maintenance of its administrative and territorial integrity—both of which were central to the policy of the 'Open Door' promulgated by Secretary of State Hay.[439] In 1915, this policy led to serious contention with Japan, when the United States resisted its attempt to gain disproportionate influence through its 21 demands to the Chinese. Clayton James comments that

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[434] Serge Ricard, 'The Roosevelt Corollary,' *Presidential Studies Quarterly,* vol. 36, no. 1 (March 2006), pp. 17-26.

[435] Ivan Musicant, *The Banana Wars: A History of United States Military Intervention in Latin America from the Spanish-American War to the Invasion of Panama* (New York: Macmillan, 1990), pp. 157-285.

[436] Brian McAllister Linn, *The Philippine War 1899-1902* (Lawrence: University Press of Kansas, 2000); Brian McAllister Linn, *The U.S. Army and Counterinsurgency in the Philippine War, 1899-1902* (Chapel Hill: The University of North Carolina Press, 1989).

[437] Max Boot, *The Savage Wars of Peace: Small Wars and The Rise of American Power* (New York: Basic Books, 2002), pp. 120-124.

[438] Bernard D. Cole, *Gunboats and Marines: The United States Navy in China, 1925-1928* (Newark: University of Delaware Press, 1983); Dennis L. Noble, *The Eagle and the Dragon: The United States Military in China, 1901-1937* (New York: Greenwood Press, 1990).

[439] Jerry Israel, '"For God, for China and for Yale"–The Open Door in Action,' *The American Historical Review*, vol. 75, no. 3 (February 1970), pp. 796-807.

> Like the illusion of amity with the French people since the 1770s, Americans cultivated a misperception of special friendship with the Chinese nation—a strange idea that was not buttressed by empirical evidence but pervaded official Washington, too.[440]

But although US sympathies for China can seem somewhat strange—and were certainly not reciprocated in a similar way—they were nevertheless real. Fortunately, Japan in the 1920s actively cooperated with Western powers in the League of Nations, militarily retreated from the Soviet Union, and engaged in arms limitation talks. Its domestic order showed trends towards democratic reform, including the rise of political parties, of trade unions, and the introduction of universal male suffrage.[441] In the decade after WWI, the question whether the United States would militarily enforce the Open Door against Japan thus did not pose itself directly, but presented a future strategic risk that dominated war planning, in particular in the Navy (a point discussed in more detail in the next section). Due to the lack of civilian input, however, the military planners themselves had to define even basic US policy goals in a hypothetical conflict.

But like the eerily similar concurrent developments in the Weimar Republic, the positive trends in Japan of the 1920s occurred in a society and political system that were still highly illiberal and unstable. The industrial system was quasi-feudal, economic crises were severe, not the least due to the earthquake of 1923, and nationalist extremists repeatedly assassinated political opponents. Army activities in China bordered on insubordination, and the independence movement in Korea was brutally repressed. The Japanese intervention in Manchuria in 1931 in support of its de-facto sphere of influence there (in contrast to the principle of the Open Door) was accompanied by a spate of assassinations, as well as failed but lightly punished attempts at coups by the Army—both aspects of Japanese politics that would further increase during the 1930s.[442]

In 1932, the Stimson Doctrine declared that the United States would not recognize Japanese conquests in violation of the international treaties on China, and was—by the name-giving Secretary of State and incoming President Roosevelt, although not President Hoover—understood as a precursor to the use of economic and military sanctions.[443] The risk of military conflict with Japan over China, while arguably not yet an unequivocal one, had distinctly shifted from being a future possibility to a more present prospect. The renewal of hostilities in 1937 led to Japanese massacres in Shanghai and the shelling of American (*USS Panay*) as well as British warships. It significantly aggravated the US-Japanese relationship, albeit at a time in which attention of European powers, especially, was already firmly focussed on the threat posed by Japan's Anti-Comintern partners in Europe.

US opposition to Japanese designs in China did not derive from a vital national interest in the way it did regarding the necessity to prevent hostile domination of Western

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[440] D. Clayton James, 'American and Japanese Strategies in the Pacific War,' in *Makers of Modern Strategy*, ed. Paret, pp. 709.

[441] Ibid., pp. 703-705.

[442] Sydney Giffard, *Japan Among the Powers 1890-1990* (New Haven: Yale University Press, 1994), pp. 49-119.

[443] Richard N. Current, 'The Stimson Doctrine and the Hoover Doctrine,' *The American Historical Review*, vol. 59, no. 3 (April 1954), pp. 513-542.

Europe.[444] But although the United States position was primarily moralistic, it nevertheless had very real consequences for decisionmakers in Tokyo. While it was unthinkable for the American polity to acquiesce in the results of Japanese aggression, that same polity largely did not want to face up to the possible consequences of its stance. Throughout the period under consideration here, war over China was never articulated as an option in public, nor realistically taken into account when defence policy and budgets were set well into the second half of the 1930s.

The same was true for strategic risks that ultimately related to the nation's self-preservation, notably the imperative to prevent a situation in which the European continent would be dominated by a hostile hegemonic power.[445] Although it was addressed on the basis of the precautionary principle in war plans, Walter Lippmann wrote in 1944 that the American people

> had not had it demonstrated to them how much the defense of the Western Hemisphere depended upon having friendly and strong partners in the British Isles, in the French ports on the Atlantic, at Gibraltar and Casablanca and Dakar; or how much the defense of the Philippines depended upon French Indo-China, and upon British Hong Kong, Malaya, and Burma, and upon the attitude and the strength of Russia and upon China in Eastern Asia. ... Knowing that Japan was the only possible enemy we had to consider in the Pacific, we nevertheless turned upon our natural partners, Britain and France, and treated them as rivals whose armaments it was a diplomatic triumph to reduce.[446]

Contrary to popular perception, America did not retreat from the world in the 1920s and 1930s—especially not in the former decade, when it was actively pursuing global arms limitation treaties, tried to find a mutually beneficial settlement of war debts and reparations, and participated in the Kellogg-Briand Pact. But US participation in international agreements consistently excluded, usually explicitly, any commitment to enforcement—including the Kellogg-Briand Pact and the Four Power Treaty of 1922. As Henry Kissinger remarks,

> Disillusionment with the results of the war erased to a considerable extent the distinctions between the internationalists and isolationists. ... No significant group had a good word to say about the balance of power. What passed for internationalism was being identified with membership in the League of Nations rather than with day-to-day participation in international diplomacy.[447]

Even during the 1930s, isolationists thus did not usually advocate a reduction in American commitments overseas, for example in China. What they did advocate, however, was a conscious self-restriction in terms of the US ability to balance its commitments with commensurate power—be it through the formal or informal maintenance of the wartime alliance with Britain and France, through 'offensive' military forces that might be used to compel compliance, or through material support to

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[444] Although, ironically, that vital interest was not acknowledged at the time.

[445] Nicholas Spykman, *The Geography of Peace* (New York: Harcourt Brace, 1944).

[446] Lippmann, *U.S. Foreign Policy: Shield of the Republic,* pp. 38-41.

[447] Henry Kissinger, *Diplomacy* (New York: Simon and Schuster, 1994), p. 372.

any country who, in defending itself, also defended US security.[448] When the world situation took a turn for the worse in the early 1930s, the United States (like the other Anglophone countries) as a polity thus did not acknowledge growing present strategic risk and the need for a commensurate increase in defence preparedness. Luckily, it turned out that the geostrategic location of the United States, as discussed in the previous section, meant that addressing present strategic risk on the basis of a framework of *Rearmament Planning* did not lead to catastrophe.[449] The following section will now look in closer detail at how US defence planners at the time dealt with the difficult task they had been given.

6.1.3 Defence Planning and Codification in the Colour Plans

Defence planning in the interwar years remained a service affair. However, the Joint Board was renewed in 1919 in a strengthened form. Its members were now not named as individuals any more, but participated *ex officio*. In its old form, the Joint Board was largely limited to signing off on war plans developed by either the Army or Navy. After 1919, however, a Joint Planning Committee, consisting of the heads of respective service bodies involved in war planning, was developing joint plans upon direction by the Board. In addition, it could also initiate studies on its own, and bring plans to the attention of the Board.[450] War planning was, however, only a small part of the Joint Board's responsibility, and the bulk of the detailed planning work stayed in service hands. As Eliot A. Cohen remarks, "[t]he Board fell short of the integrated mechanisms of military planning that the services required, but it represented a substantial advance over the pre-1914 [era]."[451]

The Joint Board continued to use the colour-coded planning system it inherited from its predecessors. The United States, or BLUE, was pitted in various plans against individual or combinations of enemies, notably Japan (ORANGE), Great Britain (RED), Mexico (GREEN), Cuba (TAN), Philippine Insurgents (BROWN), China (YELLOW), Central American and Caribbean republics other than Cuba and Mexico (GRAY), or Latin and South American countries (VIOLET and PURPLE). In addition, Plan WHITE dealt with domestic disorder, and Plan BLUE was a plan for mobilization, not a war plan proper. Some of these plans existed in several variants (especially those covering several countries), and many of them spelt out more specific instructions for some or all Army and Navy districts, whose commands created and updated more detailed plans until the overall plan was rescinded. The Colour Plans were thus mainly what would today be referred to as contingency plans.[452]

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[448] Lippmann, *U.S. Foreign Policy: Shield of the Republic,* pp. 45-46; Kissinger, *Diplomacy*, pp. 369-382; Johnson, *A History of the American People*, pp. 769-777; Eugene V. Rostow, *A Breakfast for Bonaparte: US National Security Interests From The Heights of Abraham to The Nuclear Age* (Washington D.C.: National Defense University, 1993), pp. 253-332.

[449] Eliot A. Cohen, 'The strategy of innocence? The United States, 1920-1945,' ' in *The Making of Strategy: Rulers, States, and War*, eds. Murray, Knox, and Bernstein, p. 437.

[450] Ross, *American War Plans 1890-1939*, pp. 93-97.

[451] Eliot A. Cohen, 'The strategy of innocence? The United States, 1920-1945,' pp. 432-433.

[452] The literature on the war plans of the time is surprisingly small, perhaps since many of them remained classified until 1974. A comprehensive overview, unfortunately in a very badly structured and edited form, is given in Ross, *American War Plans 1890-1939.* Facsimiles of joint war plans are reproduced in Ross, ed., *American War Plans 1919-1941.* War Plan ORANGE is discussed in detail in the following

This does not, however, capture all facets of the planning activity they contained. The establishment of dedicated planning staffs in the Service headquarters did not mean that the Army and Naval War Colleges, which had conducted war planning before WWI, left that field of activity. They continued to play supporting roles, none the least as the class of each year studied particular problems in detail, whose results then fed into the war planning process.[453] War plans of the interwar period, especially Plans ORANGE and RED, thus continued to have an express educational aspect (which in particular benefited senior naval officers in WWII, who had thus throughout their career studied problems similar to those that confronted them in the war). In addition, several of the operational plans assumed the existence of BLUE forces beyond those available in reality—such as Plans ORANGE and RED, but also Plan GREEN. In addition, various versions of Plan ORANGE included elements that were challenging propositions in technological or operational terms, and certainly not feasible with existing capabilities. In short, in the absence of explicit political guidance and any other joint planning machinery, the Colour Plans also became means to define requirements for defence planning purposes. It is this latter aspect that is of particular interest for the discussion here.[454]

It is thus possible to pass relatively quickly over Plans WHITE, BROWN, YELLOW, TAN, and GRAY, as well as VIOLET and PURPLE. All of these responded to the present strategic risks discussed in the previous section, domestic (as in WHITE and BROWN) as well as foreign. China as well as Central America, the Caribbean and Latin America were obviously politically unstable at the time, and the United States had explicitly committed itself to military intervention (through the policy of the 'Open Door', the Roosevelt Corollary and the Monroe Doctrine) should its interests be threatened. These plans were thus contingency plans proper, and of very limited relevance to capability development decisions per se (although they did, of course, influence the peacetime levels of forces deployed to the Philippines and China).[455] Plan GREEN can be added to this list, even though it assumed (in its most ambitious version) a full-scale occupation of the country, involving BLUE force levels that would have been very difficult, if not impossible, to generate from the regular Army and National Guard.[456]

The situation was, however, different for War Plans ORANGE and RED (and their combination, RED-ORANGE). When contemplating a war against Japan, US planners

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excellent book: Edward S. Miller, *War Plan Orange: The U.S. Strategy to Defeat Japan 1897-1945*, which convincingly demonstrates that the joint plans alone (without Navy plans) only tell part of the story. War Plan RED is discussed in Richard A. Preston, *The Defence of the Undefended Border: Planning for War in North America 1867-1939* (Montreal: McGill-Queen's University Press, 1977).

[453] For the Army War College's influence on plans for the Second World War, see Henry G. Gole, *The Road to Rainbow: Army Planning for Global War, 1934–1940* (Annapolis, MD: Naval Institute Press, 2003). For the role of the Naval War College in forming the naval officer corps, see Michael Vlahos, *The Blue Sword: The Naval War College and the American Mission, 1919-1941* (Newport, RI: Naval War College Press, 1980).

[454] Oddly, Steven T. Ross misses this multiple purpose of the colour war plans and dismisses many of them as 'politically irrelevant' or 'unrealistic', but does not provide a suggestion of what, in his opinion, the Joint Board should have planned for. See Ross, *American War Plans 1890-1939*, esp. pp. 177-183.

[455] For a discussion of the post-First World War versions of these plans, see ibid., pp. 121-137.

[456] Ross, ed., *American War Plans 1919-1941*, p. xii (introduction common to all volumes).

did not have much information to base their considerations on, beyond the geography of the Pacific and the overall 'correlation of forces'. They quickly realized in drawing up War Plan ORANGE,[457] even before WWI, that direct US military pressure on Japan over China was not a credible rationale for an assumed conflict. Instead, they began to (correctly) see the cause for war in the US role as "a nebulous restraining force that Japan would assail someday to unblock its ambitions" in East Asia.[458] There was no information regarding the way in which Japan would attack the United States, and assumptions in US war plans had to be based on abductive reasoning on the basis of geography.[459] Given the overall material superiority of the United States, Japan would have to strike quickly and unexpectedly, and evict the United States from the Western Pacific before the US fleet could establish a base of operations there. Afterwards, it would have to wage a war of attrition in the hope of outlasting US national will. In the absence of political guidance, US war planners assumed that BLUE would demand the complete subjugation of Japan, and that it would have to achieve this within a limited time before US resolve would falter. On the basis of these considerations, they established early on that the war would consist of three main phases: A quick Japanese occupation of BLUE possessions in the Western Pacific (Phase I), a US return in force to that area, including the establishment of an operational fleet base (Phase II), and a naval blockade of Japan with the goal of starving the country into submission (Phase III).[460] Both before WWI and throughout the 1920s and 1930s, US planners discussed whether it was not possible after all to find a way to avoid defeat in Phase I (through the construction of a fleet base in the Philippines or Guam), and whether the United States fleet could quickly 'thrust' through to the Western Pacific in Phase II, or whether a step-by-step advance through conquered intermediate bases in the Mandate[461] was required.

Importantly, however, the assumptions regarding the causes for hostilities between BLUE and ORANGE meant that war would only break out if Japan went on the offensive on the East Asian mainland, and US policies had a sufficiently constraining effect to warrant ORANGE to choose war. The rationale for war was thus a world situation significantly different from that of the 1920s, and even much of the 1930s. Moreover, War Plan ORANGE assumed that Japan would attack BLUE at a time when it was free of other strategic concerns and able to concentrate its naval effort in the

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[457] War Plan ORANGE never existed as a single comprehensive document, but comprised a large number of joint and Navy strategic and operational studies relating to war with Japan. Moreover, it evolved significantly over the years, notably with regards to the US strategy for crossing the Pacific.

[458] Edward S. Miller, *War Plan Orange: The U.S. Strategy to Defeat Japan 1897-1945*, p. 25.

[459] In fact, the logical approaches taken in drawing up War Plan ORANGE are not dissimilar to those used in the Dibb Review discussed in Section 7.2.

[460] Edward S. Miller, *War Plan Orange: The U.S. Strategy to Defeat Japan 1897-1945*, pp. 19-38. Notably, both an invasion of Japan, and US Army engagement on the Asian mainland were rejected.

[461] The 'Mandate' refers to the former German islands in the Pacific that were governed by Japan through a Mandate by the League of Nations, i.e. the Marshalls, Carolines and Marianas (other than Guam). After the War, a widespread misconception held that the Japanese occupation of these islands severely restricted the US position in the Western Pacific. In fact, it had been the neutrality of the islands (and thus the impossibility of using them as refuelling stations and intermediate bases) that had constrained American options in pre-First World War plans, while it would have been impossible in any case to defend them against a Japanese attack, had they come under US suzerainty.

Pacific—in short, it "planned a war that the United States could not lose and that Japan would not wage."[462]

Since War Plan ORANGE addressed a future risk, its authors did not see themselves bound by existing force structure. Given the assumption of limited US tolerance for a long war, the US Navy did not expect to be able to build new capital ships during the war, and thus concentrated its peacetime building program on battleships and carriers. Additional auxiliaries and smaller warships, such as destroyers, were expected to join the fleet after the outbreak of hostilities. But in what at first seems like a paradox, War Plan ORANGE was based, for most of the 1920s and early 1930s, on a quick direct 'thrust' of the BLUE fleet through to the Philippines in Phase II, so that it could arrive before the Japanese were able to fortify the whole Archipelago—and this 'thrust' required exactly the large number of auxiliaries and screening destroyers that were not available in the peacetime fleet![463] The situation was similar with regards to the mobile base facilities required in the 'thrusting' strategy, or amphibious assault capabilities for the slower move through the Mandate that was part of the plans in the early 1920s, and then again from the mid-1930s. In short, since War Plan ORANGE was written by operational staffs, it had all the appearances of a contingency plan. In reality, however, it was a means to define requirements for a future Pacific war, and did indeed serve to guide the naval side of the rearmament effort that began in the last years before the American entry into the war.

In general, Army involvement in Plan ORANGE was limited, and unlike the Navy, that service devoted more energy to mobilization plans (Plan BLUE) than actual war plans. "How much the mobilization plans were to be tailored to fit the color plans was a question never quite resolved",[464] Russell F. Weigley writes. However, this was all the better since the only war plan requiring national mobilization, other than Plan ORANGE, was Plan RED for a war against Britain, which was updated until the mid-1930s. Before WWI, the Joint Board had drafted several versions of a Plan BLACK to deal with German aggression in the Western Hemisphere, but the treaty of Versailles had obviously made these redundant. France was deeply scarred and (rightly) preoccupied with a potential resurgence of its eastern neighbour, and the Soviet Union both landlocked and mired in civil war. The precautionary principle demanded that a threat from Europe be addressed, and abductive logic, perhaps combined with a certain amount of Anglophobia,[465] led to the consideration of Britain as the only European power that could threaten the United States. Understandably, the Navy concentrated its efforts on War Plan ORANGE, and the main feature of War Plan RED was an invasion of Canada by four US Armies, with the goal of preparing the Canadian provinces for incorporation into the BLUE union.[466] The only realistic setting for a US military

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[462] Ross, *American War Plans 1890-1939*, p. 183.

[463] See, for example, the table in Edward S. Miller, *War Plan Orange: The U.S. Strategy to Defeat Japan 1897-1945*, p. 128.

[464] Russell F. Weigley, *History of the United States Army*, enlarged edition (Bloomington, IN: Indiana University Press, 1984), pp. 406.

[465] John E. Moser, *Twisting the Lion's Tail: American Anglophobia between the World Wars* (New York: New York University Press, 1999).

[466] See the quotes in Peter Carlson, 'Raiding the Icebox: Behind Its Warm Front, the United States Made Cold Calculations to Subdue Canada,' *Washington Post*, 30 December 2005, p. CO1. That somewhat

conflict with a European power—namely, a repeat of WWI circumstances in which America would come to the aid of European allies—was not dealt with in any war; perhaps because the US military resented its junior role during the Great War, or perhaps because such a scenario was even less palatable politically than the 'defensive' planning that did occur.

Ultimately, Plan RED did, however, have a few beneficial effects. First, it formed the basis for a two-front RED-ORANGE War Plan. Although this plan was "rendered hypnotically engrossing not by its contact with political realities but by the immense problems posed by its hypothetical enemy combination",[467] it did serve to keep alive the principle, dating back to the war with Spain, of dealing with a European enemy before an Asian one.[468] Second, it was the only scenario involving naval combat in the Atlantic, and could consequently be 'mined' in 1939 when plans were drawn up for a war against Germany.[469] Third, it was the only plan that involved land combat against a first rate power, and thus provided a basis for US Army investigations of tanks and other aspects of modern warfare, which were of only very limited relevance in the other war plans for intervention in the Western Hemisphere or China and the Philippines.

6.1.4 Developments in Interwar Force Structure

As discussed in Section 6.1.2, the United States were faced during the interwar years with a number of comparatively small present strategic risks, and a more ominous but future possibility of war with Japan and, possibly, in Europe. A pattern of division of labour, which had emerged before WWI but was only formalized in 1927, meant that the Marine Corps carried the main burden of peacetime intervention operations. Until the early 1930s, a significant part of its strength thus remained bound in the occupation of Haiti and the Dominican Republic. The Army, however, having only a very limited role overseas,[470] was to devote itself to providing the option of expansion for major operations in wartime. In addition, it garrisoned the Philippines and the Canal Zone.

In order to prevent another haphazard mobilization as had been necessary in 1917, Congress passed the National Defence Act of 1920. It authorized a regular Army of 280,000, organized in full strength tactical units to perform operational duty overseas or at the border, and to train the reserves. The first tier of these was the National Guard, with an authorized strength of up to 435,000 men. From 1933, Guard units were formally designated as federal reserve units, which ensured that Guardsmen would be called up as units and not as individuals, as had been the case in WWI. A second tier reserve was the federal reserve, officers and enlisted men who maintained skeleton reserve units up to division level that would receive wartime enlistees and conscripts. In addition, other federal reservists would round out active units as required. The 1920 Act's introduction of the Reserve Office Training Corps at American colleges and

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cheeky article also contains the memorable comment that "[i]nvading Canada won't be like invading Iraq: When we invade Canada, nobody will be able to grumble that we didn't have a plan."

[467] Weigley, *History of the United States Army*, pp. 405-406.

[468] Ross, *American War Plans 1890-1939*, pp. 152-153.

[469] Preston, *The Defence of the Undefended Border: Planning for War in North America 1867-1939*, p. 226.

[470] Mostly occupation duties in the Rhineland during the early 1920s, and in the protection of the Beijing railway.

universities proved to be one of its most beneficial elements in this context. The overall force structure was divided into nine corps areas with one regular, two National Guard, and three reserve divisions each, and optimistically believed to be able to expand to 2.3 million men within 60 days.[471]

Risk treatment in a *Rearmament Planning* framework concentrates on the preparation of one's own forces (reagent management). Indeed, detailed mobilization plans were drawn up following the 1920 Defence Act, but without reference to particular Colour Plans as that was an endeavour judged too complicated. Plan BLUE, however, linked the two types of plans as it established minimum requirements for the defence of the continental United States, in order to cover the mobilization process. In spite of the continued maintenance of War Plan RED, however, the assumption that war would be waged in North America was dropped for the purposes of mobilization planning in 1924, which was now to provide forces for deployment overseas. War Plan BLUE withered away.[472] In parallel with these manpower-focused plans of the Army General Staff, the War department tried to prepare for industrial mobilization. The mechanisms and plans it proposed, particularly in the Industrial Mobilization Plan of 1930, were widely criticized by politicians, unions, industry and pacifists, and bore only limited resemblance to later policies. Nevertheless, they led to the establishment of, for example, the Army Industrial College, and besides providing basic studies, kept awareness of the tasks involved alive.[473]

However, the program of the 1920 Defence Act was never fully funded. By 1927, appropriations for the regular Army were cut to 118,750 men, and the National Guard hardly reached half its authorized strength. Instead of cutting force structure, Uptonians prevailed in the General Staff, and the reductions in personnel were accommodated by converting nominally full strength to skeleton units in the regular army as well. The Army was adamant that a trained cadre as a basis for mobilization be preserved at all cost. Upon becoming chief of staff in 1930, Douglas McArthur began to move the Army back to the logic behind the 1920 Defense Act, namely that the professionals were to provide the cover for the mobilization of the main force. He cut back and consolidated paper units and planned for an 'Initial Protective Force' of 400,000 trained and equipped men, which would be operational at the outset of war. However, it was only under his successor Malin Craig that his plans would begin to be adequately funded in the second half of the 1930s.[474] With the belated introduction of conscription in 1940, following 'strategic warning' in the form of the fall of France, the whole machine sprung into action—although there was never the formal M-Day on which all plans were based.

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[471] Millet and Maslowski, *For the Common Defence: A Military History of the United States of America*, pp. 385-386; Weigley, *History of the United States Army*, pp. 393-402; John K. Mahon, *History of the Militia and the National Guard* (New York: Macmillan Publishing Company, 1983), pp. 169-183.

[472] Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army 1775-1945* (Washington D.C.: Office of the Chief of Military History, Department of the Army, 1955), pp. 384-409.

[473] Millet and Maslowski, *For the Common Defence: A Military History of the United States of America*, pp. 397-399; Weigley, *History of the United States Army*, pp. 407-408; Kreidberg and Henry, *History of Military Mobilization in the United States Army 1775-1945*, pp. 493-540.

[474] John W. Killigrew, *The Impact of the Great Depression on the Army* (New York: Garland Publishing, 1979); Weigley, *History of the United States Army*, pp 400-407, 415-420; Millet and Maslowski, *For the Common Defence: A Military History of the United States of America*, pp. 396-397.

Throughout the 1920s and 1930s, the General Staff's fixation on manpower issues, and the unwillingness of Congress to fund additional equipment before WWI stocks were 'used up', severely curtailed procurement and development budgets of the Army. A major problem in this regard was, however, that the needs were far from clear. The geopolitics of the 1920s, as well as the nature of modern military operations, were very much in flux and unfamiliar to decisionmakers at the time,[475] and developments in both areas stand out much starker in hindsight than they would have at the time. Given the situations in Mexico and the Philippines, counterinsurgency was a major concern for the Army. It closely followed the French pacification of the Berbers in Morocco, and Plans GREEN and BROWN required large bodies of infantry and mounted cavalry, who would operate with limited logistics trains, largely based on pack animals.[476]

The Army disbanded its two tank battalions after the World War, and efforts in that field were divided between the cavalry and infantry corps. Like the British (and following their example), the Army experimented with an armoured force in the late 1920s, but (also like the British) disbanded it during the Great Depression. Development and fielding of light tanks continued, but armoured units as separate from cavalry or infantry did not emerge before WWII.[477] We now know that similar deficiencies also afflicted Britain and France (albeit in different ways).[478] The relative lack of a clear strategic focus of the US Army may be more an explanation than an excuse for this, but in its situation it was an appropriate strategy to keep a wide variety of capabilities, such as cavalry and coastal artillery, which despite their arguably foreseeable obsolescence were still relevant for its war plans.[479]

The situation was somewhat different for the Army Air Corps, as in the 1920s in particular it was difficult to relate air power in most, if not all of the forms in which it existed in reality (as opposed to doctrinal phantasies) to the war plans. As in the British Royal Air Force, doctrinal development (which, to a significant degree, pushed technological development) was dominated by interservice politics, and the need to assert a distinct mission and identity for the new branch.[480] By the early 1930s, the coastal defence task provided a geographically grounded rationale for the development of the long range bomber. However, government support for the development of a healthy (civilian) aviation industry probably contributed the most significant part to the

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[475] Talbot Imlay, 'Strategic and Military Planning, 1919-1939,' in *The Fog of Peace and War Planning: Military and Strategic Planning under Uncertainty*, eds. Imlay and Toft, pp. 139-158.

[476] Andrew J. Birtle, *U.S. Army Counterinsurgency and Contingency Operations Doctrine 1860-1941* (Washington D.C.: Center of Military History, United States Army, 1998), pp. 247-260.

[477] Timothy K. Nenninger, 'Organisational Milestones in the Development of American Armor, 1920-1940,' in *Camp Colt to Desert Storm: The history of U.S. armoured forces*, eds. George F. Hofmann and Donn A. Starry (Lexington, KY: University Press of Kentucky, 1999), pp. 37-66.

[478] Williamson Murray, 'Armored warfare: The British, French, and German experiences,' in *Military Innovation in the Interwar Period,* eds. Murray and Millet, pp. 6-49.

[479] A point made in Millet and Maslowski, *For the Common Defence: A Military History of the United States of America*, p. 399.

[480] Richard R. Muller, 'Close Air Support: The German, British, and American experiences, 1918-1941,' in *Military Innovation in the Interwar Period,* eds. Murray and Millet, p. 173.

fact that the United States, by the late 1930s, had the technological and industrial option to embark on mass air warfare, if that was to prove necessary in the future.[481]

After WWI, demobilization in the Navy was far from being as stark as in the Army. Nevertheless, wartime building programs were cut back, and the goal of a navy 'second to none' given up in the Washington Treaty of 1922, whose main provision was a limit on battleship tonnage divided 5:5:3 between the United States, Britain and Japan.[482] As further capital ship construction was banned for 10 years, the Navy concentrated on modernizing its existing units, notably with the conversion of the whole fleet from coal to oil fuel. The treaty's battleship procurement holiday also meant that, although procurement funds were reduced overall, there would be money available for the further development of new arms such as naval aviation and the submarine force.[483]

As mentioned in the previous section, the interwar Navy did not procure auxiliaries and small vessels to the extent that would be required in a future war.[484] Limited by treaties in its capital ship building program, it instead concentrated, partly by design and partly by accident, on developing new technologies and operational capabilities. Requirements relating to combat performance against future Japanese weapons systems were, of course, only vaguely, if at all, known in advance. Many of the Navy's specifications for equipment to be developed could, however, be derived from the demands of War Plan ORANGE, especially regarding the importance of long range and endurance. Submarine engines providing sufficient speed and range for operations with the fleet in the Western Pacific (as opposed to coastal defence) only became available in the late 1930s.[485] Similarly, it took the development of the Catalina flying boat in the early 1930s to achieve the one thousand mile range required for effective scouting in the mid-Pacific (a mission for which cruisers were not available due to arms limitations agreements).[486]

The cautionary version of War Plan ORANGE, requiring a drive through the Mandate, also demanded the capability to conquer atolls and islands as intermediate bases, a mission to which the Marine Corps devoted itself after the end of its quasi-colonial duties in the Caribbean in the early 1930s. Based on theoretical work by the legendary Major Earl H. Ellis in the early 1920s, when War Plan ORANGE had dropped, for a time, the strategy of a quick drive to the Philippines, the Corps developed a doctrine for

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[481] Williamson Murray, 'Strategic Bombing: The British, American, and German experiences,' in *Military Innovation in the Interwar Period,* eds. Murray and Millet, pp. 96-143.

[482] The relation of 5:3 between Japan and the United States was derived from the assumption that 1000 nautical miles of travel reduced a fleet's effectiveness by 10%, leading to rough parity between the two countries in the Western Pacific.

[483] Philip T. Rosen, 'The Treaty Navy, 1919-1937,' in *In Peace and War: Interpretations of American Naval History, 1775-1978*, ed. Kenneth J. Hagan (Westport, CT: Greenwood Press, 1978), pp. 221-236.

[484] See also Allan R. Millett, 'Assault From the Sea: The development of amphibious warfare between the wars: The American, British, and Japanese Experiences,' in *Military Innovation in the Interwar Period,* eds. Murray and Millet, p. 83.

[485] Ironically, the 'fleet' submarines were of course used for independent *guerre de course* in the war. See Holger Herwig, 'Innovation Ignored: The Submarine Problem: Germany, Britain and the United States, 1919-1939,' in *Military Innovation in the Interwar Period,* eds. Murray and Millet, esp. pp. 252-260.

[486] Edward S. Miller, *War Plan Orange: The U.S. Strategy to Defeat Japan 1897-1945*, pp. 175-179.

assault across defended beaches. Over the following years, numerous associated problems such as naval fire support, close air support, logistics, embarkation, and the best composition of landing parties, were examined in a series of exercises. Construction of the required transports and landing craft, however, did not occur until the start of the war.[487]

Of course, War Plan ORANGE also provided a compelling rationale for the development of carrier aviation, as the fleet would have to bring its air cover with it to the Western Pacific.[488] Iterative theoretical studies at the Naval War College, annual Fleet exercises of an experimental character, and targeted technological development throughout the interwar years produced the material and conceptual basis for carrier operations in WWII. Force structure per se was largely limited to the development of that option. Given the rapid technological development in the area, the Navy consciously limited the numbers of carrier planes it procured, in particular in the 1920s, and, with more limited success, tried to space the design of new carriers in a way that would enable new experience to be taken into account.[489] The carriers were also built with growth potential in mind, although that design principle was generally less pronounced in the context of the interwar years than in the ideal case: Technology progressed relatively fast, platforms were relatively cheap and quick to build, and the US emphasis lay on mobilization rather than structural readiness. Like the new submarines and flying boats designs (and followed by amphibious vessels), carriers capable of Pacific warfare were becoming technologically feasible in time for WWII when the shipbuilding holiday began to end in the latter stages of the Great Depression.

In summary, the risk pattern in the interwar years was very close to a *Prospective Threat*, as limited present risks were dominated by those of future war with Japan and in Europe. As was American tradition, the theory of victory was not specified in much detail, and concentrated on the preparation of US forces. Requirements to treat the dominant future risks were abductively inferred in War Plans ORANGE and RED, primarily based on an analysis of geography and the reliance on strategic warning (or M-Day). The Army but also Navy force structure primarily provided options for a future rearmament. Industrial mobilization considerations were relatively prominent, and in the Army and Carrier force in particular, equipment was primarily procured for developmental purposes. US defence planning in the interwar years thus shows all defining traits of *Rearmament Planning.*

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[487] Millett, 'Assault From the Sea: The development of amphibious warfare between the wars: The American, British, and Japanese Experiences,' pp. 50-95; George F. Hofmann, 'The Marine Corps' First Experience with an Amphibious Tank,' in *Camp Colt to Desert Storm: The history of U.S. armoured forces*, eds. Hofmann and Starry, pp. 67-91.

[488] Geoffrey Till, 'Adopting the Aircraft Carrier: The British, American, and Japanese case studies,' in *Military Innovation in the Interwar Period,* eds. Murray and Millet, pp. 191-226.

[489] Andrew F. Krepinevich, 'Transforming to Victory: The US Navy, Carrier Aviation, and Preparing for War in the Pacific,' in *The Fog of Peace and War Planning: Military and Strategic Planning under Uncertainty*, eds. Imlay and Toft, pp. 179-204. A popular misconception in this context is that the 'big gun club' refused to recognize the obsolescence of the battleship, but this view does justice neither to senior naval officers at the time, nor to the operational capabilities of both types of ship during the war. See the discussion of this and other naval 'paradigms' in William M. McBride, *Technological Change and the United States Navy, 1865-1945* (Baltimore: Johns Hopkins University Press, 2000), esp. pp. 139-210.

6.2 Australia—The 1976 *Australian Defence* White Paper

With the return of the last Australian troops from Vietnam in 1972, the era of 'Forward Defence' had come to an end. After the British withdrawal from East of Suez and President Nixon's Guam doctrine, Australia could not expect its main allies to carry the burden of fighting communist expansion in South-East Asia any more. At the same time, however, the Sino-Soviet split, the growing resilience of non-communist governments in the region and the friendly attitude of the Suharto regime in Indonesia eliminated the sources of previous urgent concerns. Up to this point, the Royal Australian Air Force (RAAF), Royal Australian Navy (RAN) and Army expected to operate in the context of operations led by powerful allies. Interoperability in terms of equipment and doctrine was thus more important with regards to British and American sister services than with the other Australian services. As Australia usually complemented the forces of its allies, there was less need for rigour in force planning or the provision of independent logistic systems. Also, Australian forces rarely needed to be the first on the scene, and readiness levels and deployment schedules could take a relatively leisurely pace.[490] In general, Australian military deployments abroad were designed to support diplomacy with its major allies rather than to influence the enemy himself.[491]

Australian strategic planners were not experienced in the task that was now before them, having relegated strategic decisions to its main allies for so long, and military officers were good tacticians rather than strategists.[492] The capability for independent strategic level intelligence collection and assessment was strictly limited, and the three separate service departments were only amalgamated into the Department of Defence in 1975. Cooperation between the services was hindered by the lack of joint operational experience, planning and doctrine, and strong resistance within the armed forces to change. Even if it was found inappropriate, much of the equipment procured in the 1960s had long service lives and could not be scrapped or replaced, given the size of the defence budget after the Vietnam War. Similarly, defence infrastructure was concentrated in the South East of the continent, far from likely areas of operation in the defence of Australia.[493] It is in this context that the Coalition government published the 1976 White Paper.

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[490] Ross Babbage, *A Coast Too Long* (Sydney: Allen & Unwin, 1990), pp. 2-4.

[491] Robert O'Neill, 'Diplomacy and Defence,' *Reference Paper,* no. 51 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1979), esp. pp. 1-8.

[492] M.G. Smith, 'Strategic Thinking and the Australian Military Profession,' *Reference Paper*, no. 141 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1985). In the words of Michael Evans, the Australian Army in addition suffers from an "anti-intellectual culture within its ranks." Michael Evans, 'Forward From the Past: The Development of Australian Army Doctrine, 1972-Present,' *Working Paper*, no. 301 (Canberra: Land Warfare Studies Centre, 1999), p. 74.

[493] J.O. Langtry, 'Australia's Defence Policy in Transition—1970 to March 1986,' *Reference Paper*, no. 140 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1986), p. 8-9; Alan Thompson, 'Defence Down Under: Evolution and Revolution 1971-1988,' *Working Paper*, no. 40 (London: Sir Robert Menzies Centre for Australian Studies, University of London, 1988), pp. 5-6.

6.2.1 Risk Pattern

The 1976 White Paper judges that "[s]trategic pressure or direct military pressure against Australia ... are at present not estimated as probable."[494] More distant conflicts would not necessarily impinge on Australia's security or call for "heightened defence preparedness", since "regional conflicts, as in the Middle East, have been successfully localised" and "regional conflict need not be seen as a preface to the collapse of international stability and the first stage of a new world war."[495] The stability of South East Asia is judged to have significantly improved, and is not seen to be seriously threatened by the remaining insurgencies throughout the region.[496] "The prospect of large external powers acquiring major strategic influence in the region [of South East Asia] has very substantially receded,"[497] the White Paper states, not the least since the Communist bloc had now unequivocally split between the Soviet Union and China, and the latter was moderating its confrontational policies.[498]

In this relatively benign situation, the only mention of present risks is indirect, and made in the context of the discussion of the tasks of the force-in being, which

> should be capable of performing current and foreseeable tasks and dealing with selected shorter-term contingencies—for example, ... sea control in areas of Australia's maritime jurisdiction; quick detection of and response to any maritime or coastal harassment; aid to the civil power in counter-terrorist operations ...; maritime surveillance and display in areas of Australian interest; ... and contributing to UN [United Nations] peace-keeping;[499]

However, the White Paper also cautions that the benign circumstances in the region might not last:

> It remains true that external powers have ample resources directly to support insurgent groups did they choose to adopt such a policy ... Domestic instabilities in the region and even a level of political discord between the states would not of themselves jeopardise Australia's security ... But in such circumstances, there could be risks of external intervention; regional rivalry and confrontation between external powers could develop. Prolonged regional tension could lead the regional states to develop capability for conventional military operations on a regional scale.[500]

Although it judges that "[n]one of these developments is at present in prospect",[501] the White Paper remarks that the Soviet Union is gaining in military potential:

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[494] Department of Defence, *Australian Defence* (Canberra: Commonwealth of Australia, 1976), p. 10.

[495] Ibid., pp. 5-6.

[496] Ibid., pp. 1, 6-7.

[497] Ibid., p. 6.

[498] Ibid., pp. 1, 4, 6.

[499] Ibid., p. 13.

[500] Ibid., p. 7.

[501] Ibid., p. 7.

> Continuing large scale Soviet military development is a cause for concern. If it cannot be slowed down or stabilised it must be countered, lest imbalances grow in important areas of the strategic relationship between the two Super Powers[502]

The White Paper judges that the United States and NATO countries show both willingness and ability to balance the Soviet Union,[503] but also remarks that "Australian assessments note many uncertainties."[504] Soviet expansion into regions that were previously peripheral to the Super Power confrontation is a source of particular concern that is extensively discussed:[505]

> the size of the Soviet military build-up and the scale of strategic weapons still leave questions about Soviet motivations unanswered. The USSR [Union of Soviet Socialist Republics] demonstrated in Angola both motivation and capability to project military power into a distant region.[506] ... It appears ready to use its increasing global military reach for political purposes. At the present time, the USSR appears capable, following its action in Angola, of exploiting the developing situation in Southern Africa to further its political and strategic influence. It is already directly involved in the Horn of Africa.[507]

There is, therefore, the possibility of more direct Soviet pressure on Australia. The assessment of prospects for the maintenance of basic stability between the Super Powers

> does not rule out lesser situations developing in a manner adverse to the interests of smaller powers. The Super Powers' relationship must be expected to fluctuate from time to time.[508] ... Soviet facilities [at the Horn of Africa] locate the USSR favourably for involvement further afield into the east Indian Ocean, should opportunity offer and it calculate the effort and risk to be worthwhile.[509]

If it gained a foothold in Australia's region, Soviet pressure could take a direct form, or manifest itself in Soviet support to a regional power hostile to Australia:

> Littoral states on the Indian Ocean have varying relationships with the Super Powers. These are a function of national strategic situations [sic] and are a matter for national

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[502] Ibid., p. 3.

[503] Ibid., p. 3.

[504] Ibid., p. 4.

[505] This focus on the Soviet influence in the region was a novelty in the 1976 White Paper insofar as a potential threat from that empire had traditionally been overshadowed by perceptions of Japan, China or Indonesia. See Robert O'Neill, 'Australian Perceptions of Threats to International Security,' *Reference Paper*, no. 97 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1982). Delivered as a paper to the Pacific Forum Conference on National Threat Perceptions in East Asia and the Pacific, Waikoloa, Hawaii, 6-8 February 1982. For a contemporary discussion of the growing importance of events in the Indian Ocean, see Robert O'Neill, 'Australia and the Indian Ocean,' *Reference Paper,* no. 50 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1976).

[506] Department of Defence, *Australian Defence*, p. 2.

[507] Ibid., p. 4.

[508] Ibid., p. 4.

[509] Ibid., p. 5.

> discretion. Significant extension of Super Power activity, however, can exercise a powerful influence on the strategic circumstances of nations in a region. Arms supply and other support can heighten regional confrontation and destabilise the military balance; it can attract competition and confrontation from the other Super Power; regional states can be drawn into these rivalries. Short of such major developments, the USSR could seek and gain local access for its military deployments, enabling it to exert direct pressure on local political developments.[510]

The White Paper thus acknowledges that major direct threats to Australia from yet unspecified enemies can develop in the future, but they are not imminent and would take time to do so:

> Where there is political instability, tension or military confrontation, a detailed course of events can be difficult to predict with reasonable confidence beyond a few years, or even less. ... [B]ut there is much continuity in the determinants of Australia's strategic circumstances. Major threats (requiring both military capability and political motivation) are unlikely to develop without preceding and perceptible indicators. The final emergence of a major military threat to Australia would be a late stage in a series of developments.[511]

Overall, the possibility of the expansion of Soviet influence or other deteriorations in Australia's security situation thus gives sufficient reason for an imperative need to address future risk—on the basis of precaution, as the nature of future challenges is uncertain. This uncertainty is however ontological rather than epistemic, as Australia does not have difficulty making sense of observed developments. Rather, the country is confronted with the general *incertitude* of the future development of the international system, as "Australia is now in a new strategic situation, and one that is still evolving, globally and regionally."[512]

Since epistemic uncertainty is low and observed developments are well understood, strategic warning is possible. The White Paper therefore requires Australia's defence planning to be responsive to the emergence of new risks and risk levels (a position also reiterated in the 1976 *Australian Strategic Analysis and Defence Policy Objectives* (ASADPO) paper):[513]

> Australia's defence interest is not confined to the presence or absence of military threat itself. We are concerned with developments that could directly or indirectly support Australia's security from military threat, or favour the development of threat sooner or later. Unfavourable developments in mainland South East Asia would not necessarily mean of themselves that threat of direct attack upon Australia was developing, but they could introduce uncertainties into our strategic prospects.[514]

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[510] Ibid., p. 5.

[511] Ibid., p. 10.

[512] Ibid., p. 2.

[513] Paul Dibb, *Review of Australia's Defence Capabilities* (Canberra: Commonwealth of Australia, 1986), p. 25.

[514] Department of Defence, *Australian Defence*, p. 6.

The risk pattern laid out in the 1976 White Paper is thus very similar to that of a *Prospective Threat.* Present risks are very limited, even hardly mentioned at all, but trends that could lead to future threats are sufficiently grave to warrant attention on the basis of the precautionary principle. The relative lack of epistemic uncertainty makes relying on strategic warning credible, and both potential enemies (the Soviet Union, its proxies or regional countries) and the ways in which they could seek strategic effect would be reasonably understood and known. However, as the following sections will discuss, codification into strategic guidance proved much more difficult.

6.2.2 Theory of Victory

Since the possibility that the conflict between the Western and Communist blocs might spill over into Australia's neighbourhood was not imminent, the Government did not judge it necessary to make its contribution to the global balance the focus of its defence effort or force structure.[515] The White Paper states that Australia "cannot contribute military forces that would be significant to the strategic balance in Europe or North East Asia, nor to the western nuclear deterrent,"[516] and that in any case its

> assessments of the international situation have not revealed any present likelihood of our being called upon to provide any direct military assistance to our allies or other defence associates.[517]

While the White Paper does "not rule out an Australian contribution to operations elsewhere",[518] and states that "in certain circumstances we would be able usefully to support local forces by making available equipments or skills in which they were deficient,"[519] it also makes it clear that participation would only be forthcoming "if our forces could be spared from their national tasks."[520]

Australia is thus trying to reduce present and future risk by limiting its efforts to

> the areas closer to home—areas in which the deployment of military capability by a power potentially unfriendly to Australia could permit that power to attack or harass Australia and its territories, maritime resources zone and near lines of communication. These are our adjacent maritime areas; the South West Pacific countries and territories; Papua New Guinea; Indonesia; and the South East Asian region.[521]

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[515] As Alan Thompson has pointed out, an Australian contribution could and probably would have been provided. as it was in 1914 and 1939, if the probability of superpower conflict was judged to be high. See Alan Thompson, 'Defence Down Under: Evolution and Revolution 1971-1988,' p. 2. Australia did, however, contribute significantly through the US joint facilities on its soil, and maritime surveillance operations in its area of strategic interest—in particular from 1980 onwards with P-3C Orion aircraft operating out of Butterworth in Malaysia. David Horner, *The Australian Centenary History of Defence, Vol. IV: Making the Australian Defence Force* (Oxford: Oxford University Press, 2001), pp. 69-70.

[516] Department of Defence, *Australian Defence*, p. 6.

[517] Ibid., p. 13.

[518] Ibid., p. 10.

[519] Ibid., p. 13.

[520] Ibid., p. 10.

[521] Ibid., p. 6.

Here, as "a not insubstantial local power, Australia is able to influence developments."[522] It plans to do so first and foremost by being, up to a point, self-reliant in combat forces:

> Our alliance with the US gives substantial grounds for confidence that in the event of a fundamental threat to Australia's security, US military support would be forthcoming. ... Short of this major, and improbable, situation, we could face a range of other situations that we should expect to handle more independently. It is not our policy, nor would it be prudent, to rely upon US combat help in all circumstances.[523]

Therefore, Australian

> forces and associated capabilities should be able to operate with substantial independence in our own environment. We should avoid development of defence capabilities that are not relevant to our own requirements.[524]

But while the White Paper states that Australia's "policy will be to support as best as we may the present relatively favourable prospect in South East Asia,"[525] it does not contain any guidance as to the rough outlines of a military strategy or political-military theory of victory that might bring about success in that policy. Even the role of regional defence associates, such as Malaysia and Singapore in the Five Power Defence Arrangements (FPDA), and of Australian capabilities to assist them remains ambiguous:

> We must continue to work constructively with [local and regional associates] to support stability and security in the general strategic situation; and by our own policy and effort we can insure against the uncertainties that continuing change will sustain and that could produce situations with which we may well have to deal on our own.[526]

Passing remarks about deterrence are also not integrated in a coherent way.[527] The White Paper thus failed to provide even a general outline of a military strategy to deal with strategic risks.[528] Only in 1983 did a *Strategic Basis* paper finally recommend the development of such a military strategy, as well as of associated operational concepts.[529]

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[522] Ibid., p. 2.

[523] Ibid., p. 10.

[524] Ibid., p. 12.

[525] Ibid., p. 7.

[526] Ibid., p. 2.

[527] Ibid., pp. 13, 18, 20.

[528] This failure may be explained by the inexperience of the Australian strategic community mentioned above, and the factional division which were only to become more severe over later years. It spawned an academic debate in which a wide range of sometimes quite unconventional strategies were discussed. See, for example, Babbage, *Rethinking Australia's Defence*, pp. 158-183; Peter J. Murphy, 'Civilian Defence: A Useful Component of Australia's Defence Structure?' *Working Paper*, no. 93 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1985).

[529] Dibb, *Review of Australia's Defence Capabilities*, p. 26.

6.2.3 Codification of Requirements

The 1976 *Australian Defence* White Paper discusses several aspects of codification in ways that are consistent with *Rearmament Planning*, but in the end their application foundered due to the vagaries of the political guidance.[530] As mentioned above, the prospective risks diagnosed in the White Paper were not deduced from any observed enemy preparations, but addressed on the basis of the precautionary principle. Therefore, risk treatment required the definition of a range of scenarios (like the US Colour Plans) that describe future possibilities, and the 1976 White Paper, indeed, includes instructions to this effect. It states that adverse developments should be examined as a range of contingencies that "while possible, are not considered likely to occur but that appear typical of the sort of situation that could arise or are important enough to warrant policy attention."[531] All *Strategic Basis* Papers from 1971 to 1983 contained similar recommendations to use contingency studies as the basis of defence planning.[532] The White Paper makes clear that the contingencies, abductively defined, are not meant to be predictions:

> None of these developments is at present in prospect. Reference to them, however, can help to clarify the basis for our abiding concern regarding prospects in South East Asia. As already mentioned, defence policy is concerned with contingencies and not simply demonstrable threats.[533]

However, force structure planning was not based on a single particular contingency, in order to preserve flexibility to deal with others.[534] According to the Department of Defence,

> Developing the core force against specific threats or contingencies of threat would risk the unacceptable distortion of that force to meet what could be the wrong threat, in the wrong place and at the wrong time.[535]

Yet, neither the 1976 White Paper nor the *Strategic Basis* documents gave an indication of *which* contingencies to include in the range of possibilities that needed to be addressed, nor how to establish a relative order of priorities between them (nor did they explicitly direct the defence organization to address them all). Neither did they give directions as to a methodology and criteria by which such a decision should be made, or how an order of priorities should be established—such as the study of worst cases, or of

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[530] F.A. Mediansky writes that the Department of Defence at the time claimed that the development of guidelines for the bureaucracy was not part of strategic guidance itself, but of subordinate documents. But he makes the same point as made herein, that the absence of a "stated and authoritative national strategy" makes the development of coherent and comprehensive guidelines impossible. F.A. Mediansky, 'The Role of the Military in Strategic Policy,' in *The Military and Australia's Defence*, ed. F.A. Mediansky (Melbourne: Longman Cheshire, 1979), p. 33.

[531] Department of Defence, *Australian Defence*, p. 12.

[532] Dibb, *Review of Australia's Defence Capabilities*, p. 26.

[533] Department of Defence, *Australian Defence*, p. 7.

[534] Desmond Ball and J.O. Langtry, 'Development of Australia's Defence Force Structure: An Alternative Approach,' *Pacific Defence Reporter*, vol. 9, no. 3 (September 1979), pp. 7-16.

[535] Evidence to the Joint Committee on Foreign Affairs and Defence, 25 July 1979, p. 2108, quoted in Joint Committee on Foreign Affairs and Defence, *Threats to Australia's Security: Their Nature and Probability*, (Canberra: The Parliament of the Commonwealth of Australia, 1981), p. 50.

most likely ones. A more detailed examination of the credibility of different contingencies and associated warning times on the basis of intelligence information could arguably have been the basis for such decisions, but neither is recommended or mentioned in the White Paper.

It is therefore perhaps not surprising that agreement within the defence organization on which contingencies to consider proved hard to achieve. Key to the argument was the relative importance of raids on the one hand and a full-scale invasion on the other hand, a theme that had already divided Australian defence planners in the inter-war years.[536] The 1976 ASADPO Paper provided examples of low-level contingencies based on the 'Defence of Australia' studies undertaken in previous years,[537] which had "postulated two levels of conflict—a low-level conflict involving harassment and raids, and an escalated conflict involving a ground force lodgement on Australian territory."[538] However, the years 1979 and 1980 saw considerable unease about Soviet intentions and strategy following the invasion of Afghanistan.[539] The Fraser government in particular showed itself to be greatly concerned with developments in the global balance and South West Asia, and events at the time were certainly perceived as giving more credence to scenarios of higher-level conflict.[540] Ten years after the 1976 White Paper, Paul Dibb thus wrote that

> The key difficulty here is that the Department and the ADF do not agree on the appropriate level of conflict against which we should structure the Defence Force. ... The Department believes that priority should be given to credible low-level contingencies and the expansion base as force structure determinants. The ADF considers that these requirements are best met in the context of planning force development on the basis of preparing for larger-scale contingencies.[541]

Whatever scenario was to be considered, it had to be developed on the basis of those dimensions of strategy that can be predicted with reasonable certainty—in other words, long-term trends such as demography, relative economic development, culture and, above all, geography (see Section 4.2.2). The White Paper thus made explicit reference to geography as a main influence on Australian requirements:

> The physical environment of Australia suggests that the characteristics of our force structure should include: ...

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[536] Michael Evans, 'From Deakin to Dibb: The Army and the Making of Australian Strategy in the 20th Century,' *Working Paper*, no. 113 (Canberra: Land Warfare Studies Centre, 2001), pp. 9-15.

[537] Dibb, *Review of Australia's Defence Capabilities*, p. 25.

[538] Ibid., p. 25, footnote.

[539] Robert O'Neill, 'The Strategic Environment in the 1980s,' *Reference Paper* no. 53 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1980), esp. pp. 22-27; Eric Andrews, *The Australian Centenary History of Defence, Vol. V: The Department of Defence* (Oxford: Oxford University Press, 2001), pp. 223-224.

[540] Ray Sunderland, 'Australia's Changing Threat Perceptions,' *Working Paper*, no. 78 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1984). See also the Defence Minister's address to Parliament: D.J. Killen, *Statement by the Hon. D.J. Killen, M.P. Minister for Defence*, 29 March 1979.

[541] Dibb, *Review of Australia's Defence Capabilities*, p. vi.

- capacity for the regular surveillance and patrol of our ocean approaches and maritime resource zone;
- naval and air strike components to deter potential adversaries;
- readily transportable and mobile land forces, with adequate capability for reconnaissance, to meet hostile incursions at remote localities;
- mobile air defence elements;
- elements for the protection of shipping from attack or other interference in Australia's focal areas and port approaches;
- a capability for sustained operations at long ranges from bases and in areas remote from sources of logistic support.[542]

However, dimensions of strategy cannot be used directly to derive requirements, but only in conjunction with a strategy or theory of victory that provides the system of cause-effect relationships to explain their influence on the expected outcome of a conflict. Since the political guidance in the 1976 White Paper did not provide the outline of such a strategy, its treatment of the influence of geography on defence requirements, as quoted above, had to remain vague and general, unsuitable to derive detailed conclusions or priorities between capabilities. It is only later, in the context of the Dibb Review and its implementation, that joint strategies were developed that took full advantage of geography and even culture[543] in Australia's area of direct interest.

Besides the use of abductive scenarios, strategic warning of future risks is a second main element of codification in a framework of *Rearmament Planning*. As mentioned in the previous section, epistemic uncertainty in the international system was judged to be low compared with the *incertitude* inherent in its future development. Therefore, it would have been both possible and necessary to adjust the Australian defence effort to emerging, more clearly perceived risks by the use of strategic warning. This point was confirmed in the classified 1976 ASADPO paper, which reportedly

> observed that a warning time which began when specific threats were perceived was too narrowly based, and that defence planning and preparations could be expected to be responsive to adverse strategic changes in advance of a perceived threat.[544]

The 1976 White Paper elaborates on the implementation of such a reliance on strategic warning, and states that

> there must be continuous review of assessments by an expert intelligence organisation to ensure prompt detection of any significant change in the developing strategic situation. This relates ... to the requirement for maximum warning time or any requirement for expansion of the Defence Force. Constant and close watch must be

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[542] Department of Defence, *Australian Defence*, p. 14.

[543] Ross Babbage, 'Looking Beyond the Dibb Report,' *Working Paper*, no. 110 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1986), pp. 19-22; Babbage, *A Coast Too Long*, pp. 105-112.

[544] Dibb, *Review of Australia's Defence Capabilities*, p. 25.

> maintained on whether this warning time is likely to fall short of the lead times—sometimes many years—necessary for expansion, including development and training of the force, organization of the defence infrastructure, acquisition of equipments, securing supply lines and other external support. Requirements in these respects will, of course, differ according to the nature of the possible threat that is perceived.[545]

But reaction and expansion times are, of course, different from warning time in that they depend on how the defence force is to react and what is to expand. In other words, a general idea about the strategy used to meet a possible future threat is already required for a comprehensive analysis of reaction and expansion times. Again, the imprecision of political guidance of the 1976 White Paper stood in stark contrast to the quite detailed and sound (in the light of the theory developed in this thesis) recommendations regarding its codification.

6.2.4 The 'Core Force' Concept

In 1975, a *Strategic Basis* paper accepted by the Labor cabinet used the term 'Core Force' to describe the concept on which to base the development of the ADF. It stated that

> the core force should be a force able to undertake peacetime tasks, a force sufficiently versatile to deter or cope with a range of low-level contingencies which have sufficient credibility, and a force with relevant skills and equipment capable of timely expansion to deter or meet a developing situation. Capabilities related to the least conceivable contingency of major assault against Australia should command a low priority in the development of force structure, provided the capability for expansion is not prejudiced.[546]

Although the Coalition's 1976 White Paper does not use the term 'Core Force', the concept it develops is essentially the same and the term stayed in use for several years. The requirements for present capabilities in the force-in-being are limited and comprise

> sea control in areas of Australia's maritime jurisdiction; quick detection of and response to any maritime or coastal harassment; aid to the civil power in counter-terrorist operations ...; maritime surveillance and display in areas of Australian interest; ... and contributing to UN peace-keeping;[547]

More important is thus the treatment of uncertain future risk, which dominates the risk pattern and therefore also the requirements placed upon the force-in-being. That force

> should be of a size and versatility and possess or have under development or acquisition the structure, equipments and professional skills adequate for timely expansion against

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[545] Department of Defence, *Australian Defence*, p. 12.

[546] Strategic Basis 1975 originally quoted in the Submission of the Department of Defence (p. S313), quoted in Joint Committee on Foreign Affairs, Defence and Trade, *The Management of Australia's Defence*, p. 36.

[547] Department of Defence, *Australian Defence*, p. 13.

> a range of contingencies of various types and timings, as indicated by the strategic guidance from time to time.[548]

The 1976 White Paper thus demands "that all the necessary skills be at hand or capable of timely development as the need is foreseen",[549] and states that

> Preparatory planning and practical measures taken in advance and based upon a capable and versatile force-in-being would substantially reduce the time necessary to organise an effective defence response.[550]

Overall, the idea of providing options through the 'Core Force,' as well as the way in which the requirements for this force were to be codified, was thus largely consistent with the ideal concept of *Rearmament Planning*. Uncertainty regarding the shape of future risk was more pronounced than presumed in the ideal case, largely due to the absence of priorities in the political guidance. This led to the fact that the 'Core Force' was a portfolio of forces that could expand in several ways, rather than the nucleus of a known terminal force. Accordingly, 'force expansion models' were identified for the growth of specific core blocs.[551] As in the ideal model, however, geography and abductive reasoning were to be used to codify political into strategic guidance, and the focus of requirements lay on the coherent design of Australia's forces rather than meeting an enemy's known order of battle.

The White Paper did not give as high a priority as the ideal concept to considerations regarding the options for expansion in the industrial base, as the capability of the small Australian economy in this regard was limited in any case. It did however remark that

> A further objective is the progressive development of a range of basic technologies and capacities which would facilitate an intensification and diversification of present activities to match force expansion, should the need arise.[552]

The later emphasis on the use of 'state of the art' technology was another divergence from the ideal concept,[553] which assumes that platforms with growth potential are more appropriate in this situation. In fact, the 1976 White Paper itself was relatively mute on the required technological level of the forces, although its statement that "Australia should ... be prepared to increase selectively the technological level of its forces if this should be called for"[554] could be read to imply that the ideas of its authors might have been closer to those of the ideal concept. In any case, Australian defence planners were

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[548] Ibid., p. 13.

[549] Ibid., p. 30.

[550] Ibid., p. 12.

[551] Langtry, 'Australia's Defence Policy in Transition—1970 to March 1986,' p. 7.

[552] Department of Defence, *Australian Defence*, p. 51.

[553] Langtry, 'Australia's Defence Policy in Transition—1970 to March 1986,' p. 7.

[554] Department of Defence, *Australian Defence*, p. 14.

reluctant at the end of the 1970s to commit to specific systems, as the area of conventional weapons technology was seen to undergo revolutionary change.[555]

Despite the theoretical congruency of the risk pattern, guidelines regarding the codification, and the force structure concept outlined in the 1976 White Paper, two weaknesses hampered the application of the 'Core Force' concept. One of these related to its implementation, the second to its inception. First, the defence organisation was most concerned with the application of the 'Core Force' concept to defence equipment and the order of battle, rather than other aspects of the expansion process. Desmond Ball wrote in 1980 that

> Departmental thinking today is dominated by the concerns of peacetime management. Insofar as the military considers the requirements of mobilisation and possible war-fighting, such consideration is almost entirely in terms of hardware and of equipment acquisition lead-times. ... [T]here is evidently an assumption prevalent within the Australian Defence Force to the effect that organisation, command, and staffing, personnel and infrastructure arrangements are either zero or at least very short lead-time items.[556]

But since the acquisition times for aircraft carriers, frigates and fighter planes, which were the main equipment projects at the time, are very long compared to warning times for many contingencies, applying the 'Core Force' concept primarily in terms of equipment was not particularly suitable for guidance regarding force structure decisions.[557] And with regards to land forces in general, and infantry in particular, training rather than equipment is the limiting factor, so that the ADF's focus here probably also precluded more appropriate manpower schemes from being seriously considered.[558]

Second, the inadequacies of political guidance—namely the lack of a clear prioritisation between contingencies and of even the outline of a theory of victory—meant that it was impossible to determine what the force-in-being should be the core of, even if it were to be a portfolio of cores. Arguably, the lack of clear guidance should have called for a maximum of flexibility in the long term. Indeed, this view resonates with the fact that the 'Core Force' was to react to strategic warning of changes in long-term risks, rather than merely to clear threats themselves:

> The core force is <u>not</u> a static entity maintained against the day when warning of a particular threat is declared to have been received. Rather, the expansion base provided by the force-in-being is continually being developed in response to changing

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[555] Desmond Ball, 'Equipment Policy for the Defence of Australia,' in *The defence of Australia—fundamental new aspects,* ed. O'Neill, pp. 97-124. See also Babbage, *Rethinking Australia's Defence*, Appendix B.

[556] Desmond Ball, 'The Australian Defence Force and Mobilisation,' in *Problems of Mobilisation in Defence of Australia*, eds. Ball and Langtry, p. 23.

[557] J.O. Langtry and Desmond Ball, 'Australia's Defence Forces at the Crossroads,' in *Defence Yearbook 1980,* ed. Royal United Service Institute for Defence Studies (London: Brassey's Publishers, 1979), pp. 76-92.

[558] See, for example, Babbage, *Rethinking Australia's Defence*, pp. 184-208; J.O. Langtry, 'Manpower Alternatives for the Defence Forces,' *Working Paper*, no. 2 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1978).

> circumstances including both strategic and technological. The expansion capacity of the Defence Force will depend on many factors such as the extent of the developing threat, the civil resources that are mobilised and directed to its development and the extent of support in the community. Numerous study treatments have demonstrated the futility of relying on simplistic analysis techniques drawn from peace-time derived data for assessment of expansion capacity.[559]

Yet, while flexibility can be preserved over the medium term by the maintenance of a broad platform inventory and tolerance to changes of doctrine—something that the ADF did try to maintain, options are the only defence planning tool available over long time frames, and do require some authoritative guidance on the question of what terminal force or forces were necessary. In the absence of such guidance,

> The system fails to perform any of its major objectives satisfactorily. Certainly the present security system does possess a token capacity to meet a large number of contingencies, but it is important to realize that the price of this nominal multiple-contingency flexibility and adaptability is very high. In effect, it necessitates the procurement of small numbers of practically every conceivable unit and equipment type. ... Moreover, because the combat personnel who can be mobilized readily are so widely dispersed, in a functional sense, the total structure's immediate response capacity is constrained severely. But perhaps the most important weakness of all is that this wide diffusion of expertise limits heavily the current security concept's surge capacity.[560]

The limitations of political guidance at the time thus meant that strategic guidance could not provide a clear conceptual basis for decisionmaking. It is possible that, to some extent, this failing was due to a lack of ambition—Chief of the Defence Force Staff (CDFS) Synnot, for example, wrote that "[a]t a time of low or intermediate threat, strategic guidance cannot be expected to be sufficiently specific to enable us to determine the force structure."[561] To some extent, it might even have been deliberate, so that the Services "can use it to justify the selection of any piece of equipment they want"—as Admiral Peek, a former member of the Defence Committee, suggested.[562] In the end, the 'Core Force' concept remained a rather simple idea that could not be fleshed out by codified rules, a fact acknowledged by a senior official at the time:

> The [core force] notion is essentially simple; in a sense it is almost a null concept. Essentially all forces anywhere are core forces which can be expanded, contracted or changed in concept to meet a variation of the strategic conception either in a time of peace, threat of war or time of war. Core force is just another pair of portmanteau

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[559] Department of Defence, in *Official Hansard Report*, 18 March 1981, p. 1612, quoted in Ray Sunderland, 'Australia's Defence Forces—Ready or Not?,' *Working Paper*, no. 94 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1985), pp. 6-7.

[560] Babbage, *Rethinking Australia's Defence*, pp. 150-151.

[561] A.M. Synnot, 'The Changing Challenge of our Defence Force,' *Pacific Defence Reporter*, vol. 2, no. 9 (March 1976), p. 14.

[562] Quoted in Desmond Ball, 'The Role of the Military in Defence Hardware Procurement,' in *The Military and Australia's Defence*, ed. Mediansky, p. 54.

> words which can if necessary be defined accurately, but I think ... it is unnecessary to do so.[563]

6.2.5 Suggested Improvements on the 'Core Force' Concept

The weaknesses of the 'Core Force' as a planning concept, rather than as a loose framework of thinking, were thus already widely known and discussed at the time.[564] One of the major factors in the public debate was a perceived inability to expand the force to meet threats within the available warning time—an issue that had already been raised prior to the publication of the 1976 White Paper.[565] The Joint Committee on Foreign Affairs and Defence also wrote in 1979 that it was

> not satisfied that the core force, as presently constituted, could expand to its required level within a realistic period of warning should the threat of major direct attack emerge in the future.[566]

Several improvements on the 'Core Force' concept were suggested in the public arena. They can be distinguished into two conceptually different approaches, which were however usually combined to a greater or lesser extent by different authors. Both resonated with parallel developments in the services, and ultimately laid the intellectual groundwork for the 1986 Dibb Review.

The first was to find ways of more precisely defining representative contingencies that the ADF should be able to meet. Ross Babbage proposed a methodology for doing so that conformed with the role of scenarios in risk management on the basis of the precautionary principle, namely that they are to demonstrate a range of possibilities rather than to try to predict future events on the basis of an inadequate informational basis.[567] Expansion paths to meet scenarios thus derived would then have to be more precisely analysed, especially with regards to the identification of future decision points, as the length of both warning and reaction time could differ significantly between contingencies.[568]

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[563] Testimony of G.F. Cawsey, First Assistant Secretary, Force Development & Analysis Division, Department of Defence, in official *Hansard Report of the Parliamentary Joint Committee on Foreign Affairs & Defence,* Inquiry into Australia's defence procurement programs and procedures, 9 November 1978, p. 1070, quoted in J.O. Langtry and Desmond Ball, 'Australia's Strategic Situation and its Implications for Australian Industry,' *Reference Paper,* no. 38 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1980), p. 10.

[564] For a good summary, see Babbage, *Rethinking Australia's Defence*, pp. 76-85. See also Dibb, *Review of Australia's Defence Capabilities,* pp. 26-28, 34-35.

[565] Ross Babbage, 'Australia's Strategic Re-Orientation—Some Important Implications,' in *The defence of Australia—fundamental new aspects,* ed. O'Neill, pp. 7-26.

[566] Joint Committee on Foreign Affairs and Defence, *Australian Defence Procurement* (Canberra: Government Printing Service, 1979), p. 17.

[567] Babbage, *Rethinking Australia's Defence*, esp. pp. 262-274. See also Sunderland, 'Australia's Defence Forces—Ready or Not?'.

[568] Babbage, *Rethinking Australia's Defence*, esp. pp. 275-294; Ray Sunderland, 'Problems in Australian Defence Planning,' *Canberra Paper*, no. 36 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1986), esp. pp. 67-82; Ray Sunderland, 'Selecting Long-Term Force Structure Objectives,' *Working Paper*, no. 95 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1985).

The second approach was to more precisely define the way in which current force structure could be used to have strategic effect on future threats. In other words, the aim was to define the outline of a theory of victory, which related in particular to focussing more on the dissuasive role of the force-in-being rather than viewing it merely as the organisational basis for expansion. J.O. Langtry and Desmond Ball developed this concept in more detail,[569] building on ideas that had already been developed by several other authors at the time in a discussion of how to implement conventional deterrence in the Australian context.[570] However, this label is somewhat misleading as they were concerned with deterrence through denial rather than deterrence through punishment,[571] and with dissuasion (of the emergence of new enemy capabilities)[572] rather than deterrence in a more limited sense (i.e. of hostile enemy actions themselves). Robert O'Neill also made this distinction at the time, when he wrote that

> we are concerned with deterrence, but in most cases it is not deterrence of the use of forces which exist but deterrence of the development of forces which could project substantial combat power across the great distances which separate Australia from any potential enemy nation.[573]

Central to the concept proposed by Langtry and Ball was the use by Australia of

> specific capabilities that will cause a potential aggressor to respond disproportionately in terms of the cost in one or all of money, time, materiel, and/or manpower in order to gain the advantage.[574]

Potential enemies would thus be forced to undertake military build-ups of a kind that would provide unambiguous warning, a longer reaction time as well as more

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[569] J.O. Langtry and Desmond Ball, *Controlling Australia's Threat Environment* (Canberra: Strategic and Defence Studies Centre, Australian National University, 1979). Their ideas were endorsed by both the Joint Committee on Foreign Affairs and Defence (Joint Committee on Foreign Affairs and Defence, *Australian Defence Force—Its Structure and Capabilities* (Canberra: Parliament of Australia, 1984), p. 83.) and the Labor Party (Desmond Ball, 'Labor's Policy of Self-Reliance and National Defence: A National Effort for a National Defence,' in *Policies and Programs for the Labor Government*, eds. John Reeves and Kelvin Thomson (Blackburn: Dove Communications, 1983), pp. 113-131.), but as the following section will discuss, the concept was incompatible with the growing emphasis placed on short-warning time, low-level contingencies in Australian defence planning and thus did not become highly influential in practice.

[570] For a good overview on that discussion, see Michael Evans, 'Conventional Deterrence in the Australian Context,' *Working Paper*, no. 103 (Canberra: Land Warfare Studies Centre, 1999), esp. pp. 18-28.

[571] See Langtry and Ball's discussion of the relationship between deterrence and 'war-fighting', itself based on artificial distinctions en-vogue at the time amongst American theorists of nuclear strategy. Langtry and Ball, *Controlling Australia's Threat Environment*, pp. 9-21.

[572] Kugler, 'Dissuasion as a Strategic Concept'; Hagood, 'Dissuading Nuclear Adversaries: The Strategic Concept of Dissuasion and the U.S. Nuclear Arsenal'.

[573] Robert O'Neill, 'The Structure of Australia's Defence Force,' *Working Paper*, no. 10 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1979), p. 8.

[574] Langtry and Ball, *Controlling Australia's Threat Environment*, p. 22. It is interesting to note that potential enemies would apply the same principle against Australia in low-level harassment. J.O. Langtry and Desmond Ball, 'The Development of the Australian Defence Force,' in *Strategy and Defence*, ed. Desmond Ball (Sydney: George Allen & Unwin, 1982), pp. 272-273.

information about the enemy challenge,[575] and Australian forces could then be built up in an appropriate, more balanced fashion.[576] Using capabilities that require a disproportionate response to gain unambiguous warning and more information about the enemy's strategy thus provided the outline of a theory of victory, and explained how the force-in-being could be used to strategic effect in the future. What the Langtry and Ball concept could not do was to substitute for lack of political guidance regarding the risk pattern to be treated, as the authors freely admitted:

> For it to be fully effective, however, much more explicit strategic guidance would be needed concerning the specific range of contingencies to be deterred and as to the extent of and circumstances in which US support would be forthcoming.[577]

But for a given type of potential threat, specific force structure priorities could be derived from this theory of victory by using known dimensions of strategy for codification, notably geography and technology. The former defined the setting in which both the Australian and (abductively postulated) enemy forces would have to operate, in particular the maritime approaches to the continent over which an enemy would have to project forces. In the context of high-level threats, for example, it would require a substantial effort on the enemy's part to overcome an Australian force-in-being that placed strong emphasis on submarine, offensive naval mining and maritime air strike capabilities. This effort would be evident to Australian intelligence before the adversary could commence a serious attack. Similarly, the ability to raise quickly one division to full strength would be valuable not so much for fighting off an imminent invasion, but because it would force the enemy to go to significantly greater effort in creating amphibious forces, should he contemplate such a course of action.[578] Technology, tactics and operational art provided another avenue for codification as those capabilities that maximise the effectiveness of the force-in-being, as opposed to those that augment it quantitatively, would be most appropriate for the initial force structure. In this context, Ball and Langtry examined force multipliers and identified, for example, command, control and communications as an important priority.[579]

In summary, the risk pattern in the 1976 White Paper was very close to a *Prospective Threat*, as limited present risks were dominated by those of a potential Soviet-supported adversary arising in Australia's neighbourhood in the future. While the theory of victory was not specified in much detail and did concentrate on the preparation of Australian forces, it failed to give any indication of how Australia might react to such a risk. Requirements to treat the dominant future risk were to be abductively inferred on

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[575] Ball and Langtry, 'Development of Australia's Defence Force Structure: An Alternative Approach,' pp. 27, 31.

[576] Langtry and Ball, *Controlling Australia's Threat Environment*, p. 23.

[577] Ball and Langtry, 'Development of Australia's Defence Force Structure: An Alternative Approach,' p. 33.

[578] Langtry and Ball, *Controlling Australia's Threat Environment,* 37-44, 53-54. See also the discussion in Robert O'Neill, 'Australia's Future Defence Requirements,' *Working Paper*, no. 24 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1980).

[579] J.O. Langry and Desmond Ball, 'The Concept of Force Multipliers and the Development of the Australian Defence Force,' *Working Paper*, no. 66 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1983); J.O. Langtry and Desmond Ball, 'Force Multipliers, the Concept of Disproportionate Response and Defence Planning,' *Pacific Defence Reporter*, vol. 9, no. 3 (September 1982), pp. 35-40.

the basis of scenarios, based on an analysis of geography and the reliance on strategic warning. In practice, however, political guidance did not set priorities among endless possible developments thus defined. The 'Core Force' was meant to provide options for a future rearmament, but was hampered by the lack of indication what to prepare for. Given Australia's economy, industrial considerations were limited, but still oriented towards future rearmament. The White Paper is moot on the technological level of platforms required, and subsequent practice did not accord with the ideal concept in this regard. Overall, however, Australian defence planning, at least in its intentions, showed most of the defining traits of *Rearmament Planning.*

CHAPTER 7:

THREAT-BASED PLANNING

Threat-based Planning is in many ways the most straightforward defence planning framework and often taken as a reference case. Requirements are deductively inferred from an application through net assessment of force structure variations and theory of victory to the known enemy threat. In order to provide the context for the discussion of the *BUR* below, the US example in this chapter will concentrate on the forces and concepts developed after the Vietnam War. The second example, the Australian White Paper of 1987, is based on a particular application of abduction, which nevertheless leads to a *Threat-based Planning* framework in, perhaps, an even more accentuated form.

FIGURE 27: THREAT-BASED PLANNING OVERVIEW

Risk Pattern	*Ideal Pattern*	'Clear and Present Danger'
	Number of threats	One
	Enemy's theory of victory	Understood
	Risk at which time?	Short and long-term
Theory of Victory	*Specificity / Level of Detail*	Specific
	Risk Treatment Approach	Direct risk reduction
Codification and Requirements	*Main Inference*	Deduction / Net Assessment
	Reduced by	-
	Defined through	Theory of victory
	Concentrated at which time?	Short and long-term
Force Structure	*Characteristic sought*	Hedging
	Platforms	Specialized
	Technical specifications	Precise and must be fulfilled
	Development and procurement approach	Grand-design

7.1 United States—General Purpose Forces After Vietnam

Peacetime military engagement overseas did not come easily to the United States after WWII. However, the country appreciated the lessons of its retreat from active balance-of-power politics 25 years before, and the exhaustion of European powers left little doubt that they would be unable to fill the vacuum should it retreat into isolationism. But as it had always done, the United States thoroughly demobilized its military after the war, even while "[a] shadow has fallen upon the scenes so lately lighted by the Allied victory" in the form of the 'iron curtain' that surrounded the territories 'liberated'

by the Soviet Union.[580] In 1947, the year of the start of both the Berlin Blockade and the French war against the Vietminh, the Truman administration took over the baton from the United Kingdom in supporting Greece[581] against communist insurgency. The same year, George Kennan wrote that the Soviet totalitarian challenge required "a long term, patient but firm and vigilant containment of Russian expansive tendencies,"[582] through

> the adroit and vigilant application of counterforce at a series of constantly shifting geographical and political points, corresponding to the shifts and maneuvers of Soviet policy.[583]

7.1.1 Containment: Risk Pattern and Theory of Victory of the Cold War

At the time, Western European states already began to ally themselves more formally—first through the Dunkirk treaty and then, hurried by the pressure of events especially in Czechoslovakia in early 1948, the Brussels treaty between Britain, France and the Benelux countries. The US military began to cooperate on an informal basis with the treaty powers, which already at this early time established the principle of defending Europe as far to the East in Germany as possible, none the least to provide time for a US entry into the war and US reinforcements to arrive.[584]

In the United States, debate on the consequences flowing from Kennan's idea of containment quickly led to the conclusion that efforts would have to be concentrated in areas of vital US interests.[585] The premise before and during the World War that the safety of the American hemisphere required the survival of allies in the Rimland of Mackinder's 'world island', still held true. In spite of the devastations wrought by the war in Europe, the United States could not afford to let the Old World's demographic and industrial potential fall under Communist rule. Only four years after the war, the United States thus formally committed itself to the defence of Western Europe through the Washington Treaty.[586]

That same year, and several years before it was expected to gain this capability, the Soviet Union exploded its first atomic bomb. US assumptions underlying the estimate of a low likelihood of global war in George Kennan's NSC-20/4 had to be rethought, as a strategy of slow mobilization under the US atomic screen—in fact, a replay of

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[580] Winston S. Churchill, *The Sinews of Peace*, speech at Westminster College, Fulton, MO, 5 March 1946.

[581] And, for the sake of regional balance, to Turkey.

[582] George Kennan (under the alias of "X"), 'The Sources of Soviet Conduct,' *Foreign Affairs*, vol. 25, no. 4 (July 1947), p. 575.

[583] Ibid., p. 576.

[584] For a concise summary of these developments, which occurred with a remarkable speed that attests to the urgency felt at the time, see David Miller, *The Cold War: A Military History* (London: John Murray, 1998), pp. 3-24.

[585] Kissinger, *Diplomacy*, pp. 463-466.

[586] At the same time, it arranged the formation of an (as yet not fully sovereign) German state, holding out the prospect of German divisions contributing to the common defence in the not-too-distant future, and challenging Soviet domination of Eastern Europe through its very (divided) existence

Rearmament Planning—was becoming rapidly obsolete. The result of these deliberations was NSC-68 of 1950.[587]

NSC-68 laid out the theory of victory for what was to become the Cold War. It summarizes the objectives of containment as to

> (1) block further expansion of Soviet power, (2) expose the falsities of Soviet pretensions, (3) induce a retraction of the Kremlin's control and influence, and (4) in general, so foster the seeds of destruction within the Soviet system...[588]

However, these goals were to be achieved "by all means short of war".[589] It goes on to state that

> The frustration of the Kremlin design requires the free world to develop a successfully functioning political and economic system and a vigorous political offensive against the Soviet Union. These, in turn, require an adequate military shield under which they can develop. It is necessary to have the military power to deter, if possible, Soviet expansion, and to defeat, if necessary, aggressive Soviet or Soviet-directed actions of a limited or total character.[590]

The goal of containment was positive—ultimately, the destruction of the Soviet system—and it included an offensive as well as defensive component.[591] This offensive was, however, to be carried by political means, none the least the example that free societies could set for those enslaved under Communist rule.[592] The role of military force was limited to the strategic defensive, notably foiling Soviet expansive aspirations that would threaten hostile domination of the Rimlands. The purpose of large parts of NSC-68 was then to convince the reader that such a rapid, radical and sustained build-up of (defensive) US military power was both possible and necessary to execute this role. In particular, it had to be able

a. To defend the Western Hemisphere and essential allied areas in order that their war-making capabilities can be developed;

b. To provide and protect a mobilization base while the offensive forces required for victory are being built up;

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[587] For background on NSC-68, see Paul Nitze, 'The Grand Strategy of NSC-68,' in *NSC-68: Forging the Strategy of Containment*, ed. S. Nelson Drew (Washington D.C.: National Defense University, 1994), pp. 7-16.

[588] National Security Council, *United States Objectives and Programs for National Security*, NSC 68, 14 April 1950, section VI.A.

[589] Ibid.

[590] Ibid.

[591] See also Peter Schweitzer, *Victory: The Reagan Administration's Secret Strategy that Hastened the Collapse of the Soviet Union* (New York: The Atlantic Monthly Press, 1994).

[592] A grand strategy whose main outline was confirmed, at a different time and in a different context, in the 1967 NATO Harmel Report. It is of course also true that the means and objectives of the political 'offensive' by which the West tried to change the Soviet Union varied much more over the course of the Cold War than those of the military 'defensive' side

c. To conduct offensive operations to destroy vital elements of the Soviet war-making capacity, and to keep the enemy off balance until the full offensive strength of the United States and its allies can be brought to bear;

d. To defend and maintain the lines of communication and base areas necessary to the execution of the above tasks; and

e. To provide such aid to allies as is essential to the execution of their role in the above tasks.[593]

Successful execution of these tasks in war would foil Soviet expansion into Western Europe and thus fulfil the military's role in the overall theory of containment set out in NSC-68.[594] They would thus remain the core objectives of the collective Western military effort for the following 40 years, even if the relative emphasis changed repeatedly over time. To their end, President Truman proclaimed "the existence of a national emergency" in December 1950,[595] and NATO, within a few years, created an integrated military organization of unprecedented scale and scope that bound the United States to the defence of Western Europe.[596]

The purpose here is not to recount the history of the Cold War in all its shifts in terms of geographic, political or military focus.[597] Whether Indochina was an 'essential allied area' in the terms of NSC-68 is debatable, but losses to communism in South East Asia did remain small in relation to the overall demography and geography of the region. More important for the conduct of the Cold War as a whole was the growing estrangement between Communist China and the Soviet Union. Although largely reduced in popular perception to anecdotes of ping-pong diplomacy, the informal, tentative and conditional alliance between Communist China and the United States after 1972[598] forced the Soviet Union to deploy significant military resources to protect its

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[593] National Security Council, *United States Objectives and Programs for National Security*, section IX.D.1

[594] This is not to deny that they, or the forces with which they were to be achieved, may not have been sufficient all the time to force the Soviet Union to end a war. See Gray, 'Nuclear Strategy: the Case for a Theory of Victory.'

[595] Harry S. Truman, *Proclamation 2914: Proclaiming the Existence of a National Emergency*, 16 December 1950. NSC-68 was not declassified until 1975, which has probably contributed to the popular impression that the Korean War was the reason for the following build-up. In fact, NSC-68 had been approved in principle already before the war broke out.

[596] The defence of Central Europe, and of Germany in particular, dominates popular perception of NATO's defence effort. However, the Alliance's role in the defence of Sea Lanes of Communication in the Atlantic was no less important, and relied on no lesser a level of integration. See Robert S. Jordan, *Alliance Strategy and Navies* (London: Pinter Publishers, 1990).

[597] See, for example, Kissinger, *Diplomacy*, Lawrence Freedman, *The Evolution of Nuclear Strategy* (London: Palgrave Macmillan, 2003); Gaddis, *Strategies of Containment: A Critical Appraisal of Postwar American National Security Policy*; Richard K. Betts, *U.S. National Security Strategy: Lenses and Landmarks*, Paper presented at the launch conference of the Princeton Project "Towards a New National Security Strategy", Princeton: Woodrow Wilson School of Public and International Affairs, Princeton University, 2004.

[598] Norman Podhoretz remarks that the development of this alliance signified a shift in the perception of threat from Communist totalitarian ideology as such, to an expansionist Russian nation-state. (Norman Podhoretz, 'The Rise and Fall of Containment: Informal Remarks,' in *Containment: Concept and Reality*, eds. Terry L. Deibel and John Lewis Gaddis (Washington D.C.: National Defense University, 1986), pp.

soft land underbelly, and introduced a major source of uncertainty into its war planning.[599] Nevertheless, the defence of Western Europe always remained the focal point of the Cold War in political as well as military terms, with the defence of Japan and South Korea a distinct second.[600] To a large degree, the strategic nuclear balance only derived its importance from the threat to Europe, as the US extended deterrent had a central role in the defence of its allies in the Rimland.[601]

7.1.2 Soviet Threat and US Military Strategy after Vietnam

In order not to be drawn into a discussion of the astrategic nature of significant aspects of US decisions regarding nuclear forces, and to maintain consistency with the other case studies discussed in this thesis, this section will limit itself to a discussion of conventional force structure decisions.[602] After the end of the Pentomic division, US force planning and NATO's operational and escalation strategy were largely based on a proclaimed dichotomy between conventional and nuclear war—despite evidence that the Soviet Union had distinctly different views on the subject,[603] confirmed by war plans discovered after the fall of the Berlin Wall,[604] and despite the fact that a credible threat of nuclear theatre war required nuclear and conventional forces able to operate on

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703-719.) This is, of course, correct, but at the same time the Sino-Soviet split demonstrated that Communism as a totalitarian system at a global state still layered around, rather than replaced, the nation-state. With regards to the Soviet's followers outside Russia, President Lincoln's adage comes to mind that 'you may deceive all the people part of the time, and part of the people all the time, but not all the people all the time.'

[599] Harry Gelman, *The Soviet Far East Buildup and Soviet Risk-Taking Against China*, R-2943-AF (Santa Monica: RAND, 1982).

[600] This reflected the longstanding geostrategic judgement of the relative importance of an Asian versus European threat to the Western Hemisphere, the advantages of defending a maritime theatre against a land power threat, and the relatively smaller military-industrial potential of the region compared with Europe.

[601] A fundamental difference between the role of US and Soviet nuclear arsenals that gets completely lost in numerical comparisons conducted in a geopolitical vacuum, which unfortunately make up the bulk of the literature on the subject.

[602] Although arms control ideas and a-strategic systems analysis studies influenced US strategic nuclear force structure decisions to a considerable degree, these only overlaid but did not replace the Soviet threat as the direct determinant of force sufficiency. See for example William R. Van Cleave and W. Scott Thompson, eds., *Strategic Options for the Early Eighties: What Can Be Done?* (New York: National Strategy Information Centre, 1979).

[603] Richard Pipes, 'Why the Soviet Union Thinks It Could Fight and Win a Nuclear War,' *Commentary* (July 1977), pp. 21-34; William R. Van Cleave, 'Soviet Doctrine and Strategy: A Developing American View,' in *The Future of Soviet Military Power*, ed. Lawrence L. Whetten (New York: Crane, Russak, 1976), pp. 41-71.

[604] David Miller, *The Cold War: A Military History*, pp. 358-362. Whether Soviet or NATO war plans would have been executed as anticipated is, of course, a totally different question.

the same battlefield. [605] NATO cohesion, political imperatives and military requirements were nearly always in conflict.[606] As Betts put it,

> For decades, the bedrock of NATO military strategy made no good sense, but no alternative could be found that would not divide the alliance. The key to the apparent success of NATO strategy (winning the Cold War without firing a shot) was obfuscation of the strategy's bad sense.[607]

Somewhat paradoxically, defeat in the Vietnam War in 1975 was followed by a period of overall US advantage in the Pacific theatre, largely due to the geostrategic repositioning of Communist China. In Northeast Asia, the main concern was to box the main part of the Soviet Pacific fleet into the Sea of Japan, and keep SLOC open. Economic growth and US military assistance meant that South Korea's armed forces were becoming capable of defending the Peninsula without significant US ground combat troops, in a theatre that would in any case have been of secondary importance in a global war.[608] Soviet forces in Cam Ranh Bay and the Indian Ocean were isolated from their sources of supply and reinforcement and thus unlikely to be able to operate for a long time.

In Europe, however, the Soviet arms build-up of conventional capabilities since the 1960s had ensured that, despite parallel improvements in Western capabilities, the operational problems of NATO defence on the Central Front remained formidable. By the early 1970s, 55% of the Soviet Army's manoeuvre battalions were tank formations, and all infantry was mechanized.[609] Commensurate improvements in artillery, tactical aviation and the high readiness of Category I divisions in Eastern Europe and the western Soviet Union meant that the Soviet Army was poised for a rapid, shock assault against NATO defences. Armour provided both defence against nuclear attack, and speed to exploit breaches opened by tactical nuclear strikes. Soviet forces were organized in thinly spread, consecutive echelons from the inter-German border into the western Soviet Union. In wartime, they would move westward at about the same speed, thus reducing the need for concentrations of forces at a distance from the line of battle, where they would be vulnerable to NATO nuclear attack.[610] In effect the Soviet mode of operations was a resurrection of 1930s Soviet Deep Operation Theory, adapted to the conditions of the modern, nuclear battlefield.

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[605] Thus the advantages of the enhanced radiation warhead, or neutron bomb. See William R. Van Cleave and S.T. Cohen, *Tactical Nuclear Weapons: An Examination of the Issues* (New York: Crane, Russak, 1978); S.T. Cohen, *The Neutron Bomb: Political, Technological and Military Issues* (Cambridge, MA: Institute for Foreign Policy Analysis, 1978).

[606] See Robert Endicott Osgood, *NATO: The Entangling Alliance* (Chicago: The University of Chicago Press, 1962).

[607] Betts, *U.S. National Security Strategy: Lenses and Landmarks*, pp. 22-23.

[608] Stuart E. Johnson and Joseph A. Yager, *The Military Equation in Northeast Asia* (Washington D.C.: The Brookings Institution, 1979).

[609] Jeffrey Record, *Sizing Up the Soviet Army* (Washington D.C.: The Brookings Institution, 1975), p. 15.

[610] William E. Odom, *The Collapse of the Soviet Military* (New Haven, CT: Yale University Press, 1998), pp. 72-76.

When attention shifted from Vietnam back to Europe, and in particular to the Central Front,[611] the initial American answer lay in the formulation of a doctrine of tactical defence in the 1976 Army Field Manual on Operations, concentrating on the battle with the first Soviet echelon. However, it became a focal point for both military and civilian critics who, based on a thorough analysis of Soviet doctrine, demonstrated that it was insufficient to deal with the *operational* challenge posed by the Warsaw Pact forces.[612] Over the following years, operational concepts that evolved into the Airland Battle of the 1986 Field Manual were developed to stall a Soviet attack, centring on synchronous joint operations against several Soviet attack echelons at the same time.[613] The Soviet reaction to Airland Battle (and its NATO companion, Follow On Forces Attack) consisted of a further compression of the time element in Soviet offensives, and the increased use of air-assault operations, but the required forces were never accumulated before the end of the Cold War.[614]

An area of relatively new military concern that arose after the Vietnam War was the Middle East, in particular the Gulf region. The 1973 crisis that had demonstrated the importance of oil for Western economies, estimates (albeit contested) that the Soviet Union might develop into an importer of oil, and the attractiveness of horizontal escalation for an enemy deterred from action at the Central Front focussed growing attention on the region in the second half of the 1970s.[615] The Soviet invasion of Afghanistan, the Iranian revolution and the outbreak of the Iran-Iraq significantly accentuated these concerns, even if they did not make them any clearer. Consequently, President Carter declared that "any attempt by outside force to gain control of the Persian Gulf region will ... be repelled by the use of any means necessary, including military force."[616] In practice, this meant that the United States would prepare to defend the Iranian oilfields in Khuzestan against a Soviet overland thrust through Iran.[617]

Any shifts in the US theory of victory during the Cold War were subject to acrimonious debate at the time. Perhaps only in hindsight is it thus obvious how remarkably focused

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[611] The Soviet Union also increased its threat to NATO's northern flank (See, for example, Marian K. Leighton, 'The Soviet Threat to NATO's Northern Flank,' *Agenda Paper*, no. 10 (New York: National Strategy Information Centre, 1979).

[612] In fact, it played into the Soviets' hands by concentrating on the holding echelon of the Soviet Deep Operations concept, which was to bind down the defence, not the strike echelon that was to widen tactical breakthrough into an operational breakout.

[613] For the development of both Soviet and US doctrine, see Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory* (London: Frank Cass, 1997), pp. 209-322.

[614] Odom, *The Collapse of the Soviet Military*, pp. 76-80.

[615] Melvin A. Conant, 'The Global Impact of Energy on US Security Interests and Commitments,' in *Evolving Strategic Realities: Implications for U.S. Policymakers*, ed. Franklin D. Margiotta (Washington D.C.: National Defense University, 1980), pp. 59-72; Geoffrey Kemp and Harlan K. Ullman, 'US Global Strategy: The Future of the Half-War Planning Contingency,' in *Proceedings of the National Security Affairs Conference 1977: Toward Cooperation, Stability and Balance* (Washington D.C.: National Defense University, 1977), pp. 69-77.

[616] President Jimmy Carter, *Presidential Directive/NSC-63*, 15 January 1981, p. 1. This statement is sometimes referred to as the Carter Doctrine.

[617] See Joshua M. Epstein, 'Soviet Vulnerabilities in Iran and the RDF Deterrent,' *International Security*, vol. 6, no. 2 (Fall 1981), pp. 126-158; Joshua M. Epstein, *Strategy and Force Planning: The case of the Persian Gulf* (Washington DC: The Brookings Institution, 1987), pp. 44-97. See also Paul K. Davis, 'Planning Under Uncertainty Then and Now: Paradigms Lost and Paradigms Emerging,' pp. 25-27.

it was on the same threat for more than 40 years, following its adaptations, but all the same concentrating on the tasks laid out in NSC-68.[618] Since it included operational concepts developed in reaction to actual Soviet doctrine, the Airland Battle is perhaps the best example of how the American military theory of victory was tailored to the specifics of the Soviet threat. However, examinations of US tactics in every service could demonstrate the same.[619] When William W. Kaufmann discusses uncertainties facing the defence effort at the early 1980s, the specificity of the questions he considers is telling: They relate either to the US and NATO effort itself,[620] to the fact that the conditions of a nuclear war can only be predicted up to a point, or the reliability of warning estimates. Even the uncertainty regarding the Soviet propensity to behave aggressively was limited to the probability of fairly well defined scenarios.[621] The following section will now turn to the question of how US force structure planning in particular dealt with the *Clear and Present Danger* presented by the Soviet Union.

7.1.3 Codification of Requirements

In order to determine the conventional forces necessary for its strategy of flexible response, the Kennedy Administration undertook a General Purpose Forces Study in 1962, which estimated potential requirements in 11 theatres. In an application of the *Multi-Threat Planning* model not dissimilar to the logic of the later *BUR*, the Administration chose to develop forces for 2 ½ wars, i.e. against the Soviet Union in Europe, against China in Indochina and Korea, and a 'half war' somewhere else, for example in Cuba. Central to the strategy, never fully funded and implemented, was the constitution of a large strategic reserve in the United States itself, with commensurate strategic lift capabilities to shift forces to wherever full or half wars might break out.[622]

The Nixon Administration adjusted planning to the level of realistically available forces, and the geopolitical rapprochement with China, by reducing requirements to a 1 ½ war standard. Besides the European contingency, it was understood to account for a non-Chinese supported attack by North Korea against the South.[623] As mentioned above, the situation in Northeast Asia was generally favourable at the time, and US troops in Korea were actually reduced.[624] By the late 1970s, focus shifted to the Eastern Mediterranean and Persian Gulf as likely areas of operation. Overall, however, both the 2 ½ and 1 ½ war strategies were never articulated in detail—not the least to preserve a

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[618] For a good discussion of Cold War strategy after Vietnam, see Andrew J. Goodpaster, *For the Common Defense* (Lexington, MA: Lexington Book, 1977).

[619] See, for example, Owen R. Cote, 'The Third Battle: Innovation in the U.S. Navy's Silent Cold War Struggle with Soviet Submarines,' *Newport Paper*, no. 16 (Newport, RI: Naval War College Press, 2003).

[620] The reliability of Allied contributions, the self-imposition of arms control limits, and personnel and production expansion capabilities.

[621] He also cites the concurrency judgement regarding the 1 ½ war concept as a source of uncertainty, but this would be revised shortly thereafter to the 1 and 2 x ½ concept of the Reagan administration. William W. Kaufmann, *Defense in the 1980s* (Washington D.C.: The Brookings Institution, 1981), pp. 30-39.

[622] William W. Kaufmann, *Planning Conventional Forces 1950-1980* (Washington D.C.: The Brookings Institution, 1982), pp. 5-13.

[623] Jeffrey Record, *Revising U.S. Military Strategy* (Washington D.C.: Pergamon Brassey's, 1984), pp. 29-35.

[624] Although one of the two divisions did remain for political more than strictly military reasons.

certain amount of flexibility in keeping conventional requirements affordable,[625] and since the option of nuclear escalation was inseparable from conventional defence in a war in Europe.[626]

The attention of the Carter administration, in particular, was focused on the defence of Europe. Richard Kugler writes that

> Never before had a hypothetical contingency been subjected to so much analysis of not only its broad parameters, but also its myriad details. The size and timing of the enemy threat was studied in great depth, along with the characteristics of allied forces, in an effort to establish a framework for determining U.S. force requirements for the forward defense of West Germany's borders. Once this framework was established, DOD analysts carefully examined a range of U.S. military options in order to identify the most effective responses that would make the best use of the funds available. Over the course of several years, a rich analytical paradigm was built that made a lasting contribution to refining U.S. defense planning. By the late 1970s, this paradigm helped channel the Carter administration's limited defense funds. Under the Reagan administration, the paradigm was employed to guide growing defense budgets.[627]

The central linchpin of this paradigm was a comparative assessment of NATO and Soviet forces with the goal of estimating the likely outcome of, or the capabilities necessary to prevail over, a Soviet assault on Western Europe. Methods of doing this ranged from very simplified, Lancaster-equation based calculations to computer simulations of tactical engagements of high complexity, and from personal opinions and estimates to extensive collaborative net assessment studies and wargames. The Global War Game series of the 1980s, for example, involved hundreds of participants and highlighted issues such as problems with NATO's planning assumptions of a short war, with consequences regarding the importance of war stocks to bridge the time required for industrial mobilization, or the difficulty of achieving negotiation leverage in situations of inconclusive operational stalemate.[628]

None of these methods was, of course, without fail—inevitably, they simplified many, if not most aspects of a problem as it presents itself in reality, and analysed what were really technical or operational sub-problems of the overall, political task of forcing NATO's will on the Soviet leadership.[629] Moreover, no model could deal with uncertainties relating to the nature of war and combat in advance—friction, chance and

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[625] Paul K. Davis, 'Planning Under Uncertainty Then and Now: Paradigms Lost and Paradigms Emerging,' pp. 16-24.

[626] A point often missed in treatments of conventional force modernization of the 1980s. See Roger L.L. Facer, *Conventional Forces and the NATO Strategy of Flexible Response*, R-3209-FF (Santa Monica: RAND, 1985).

[627] Kugler, *Policy Analysis in National Security Affairs: New Methods For a New Era*, pp. 258-259.

[628] Grave, 'Global War Game: Second Series, 1984–1988.'

[629] At the time, Eliot A. Cohen mentioned as common errors in net assessment analysis a disregard of political factors, overconfidence in the completeness of order of battle intelligence, reasoning on the basis of very simplified Soviet operational doctrine, simplifications by disregarding, for example, important applications of air power, or the use of artificial 'armoured division equivalents'. Eliot A. Cohen, 'Toward Better Net Assessment: Rethinking the European Conventional Balance,' *International Security*, vol. 13, no. 1 (Summer 1988), pp. 50-89.

the vagarities of strategic interaction[630] could only be *assumed*, not *modelled* away. If understood, however, as an attempt to reduce the complexities of the Soviet threat to these irreducible uncertainties, the cumulative study effort of the 1970s and 1980s was certainly impressive in its scale and scope. (Luckily, the peaceful end of the Cold War means that the *correctness* of the broad conclusions will never be known.)[631]

The logical point of departure of all these studies was the same—accurate information (or, more precisely, information believed to be accurate) on the Soviet order of battle, mobilization times, operational doctrine, weapons characteristics, geography, as well as on the NATO defence.[632] Hence the unprecedented intelligence attention paid by Western services to (almost) anything of even marginal relevance to the military potential of the Soviet Union, institutionalised and linked back to the needs of comparative analysis through the intelligence-tasking process.[633] And hence, also, the importance of successes and failures in, first, conveying (epistemic) uncertainty regarding the reliability, precision and completeness of intelligence estimates, and, second, of coming to terms with (ontological) irreducible uncertainty regarding the fact that important parts of the strategic problem simply depended on decisions the Soviet leadership had yet to take.[634] However, it is also the case that NATO forces in reality usually lagged behind those levels estimated as required to deal with demanding situations, which were by far not the worst cases imaginable.[635] Therefore, the question of how large a 'margin of error' to include in the Western defence capability to accommodate uncertainties related to intelligence and modelling did not directly pose itself.

US ground forces in Europe (and, in general, NATO allies' troops forward deployed in Germany) always had political functions that sometimes even eclipsed their military ones—serving as symbols of Alliance unity, 'tripwires' for nuclear retaliation, or hostages to the NATO allies facing the Soviet threat on their borders. Under the concept of 'flexible response' and its (conditional) commitment to conventional defence, however, the size of the US ground forward deployment to Europe was calculated from basic considerations regarding NATO defences against Soviet attacks. Levels of ground forces required then, in turn, also drove proportional requirements for tactical airpower for air superiority, close air support and interdiction missions.[636] Within this paradigm of comparative assessment of US and Soviet ground forces, (implicitly) codified rules on determining ground force structure requirements largely

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[630] See Sections 2.3.3 to 2.3.5.

[631] See also Pickett, Roche, and Watts, 'Net Assessment: A Historical Overview.'

[632] The latter is an important point. One's own plans, by their very nature, create an illusion of control that hides the fact that their implementation in reality is simply an ex-ante assumption. See Betts, *Surprise Attack: Lessons for Defense Planning*, esp. pp. 170-188.

[633] Berkowitz and Goodman, *Strategic Intelligence for American National Security*, pp. 30-63

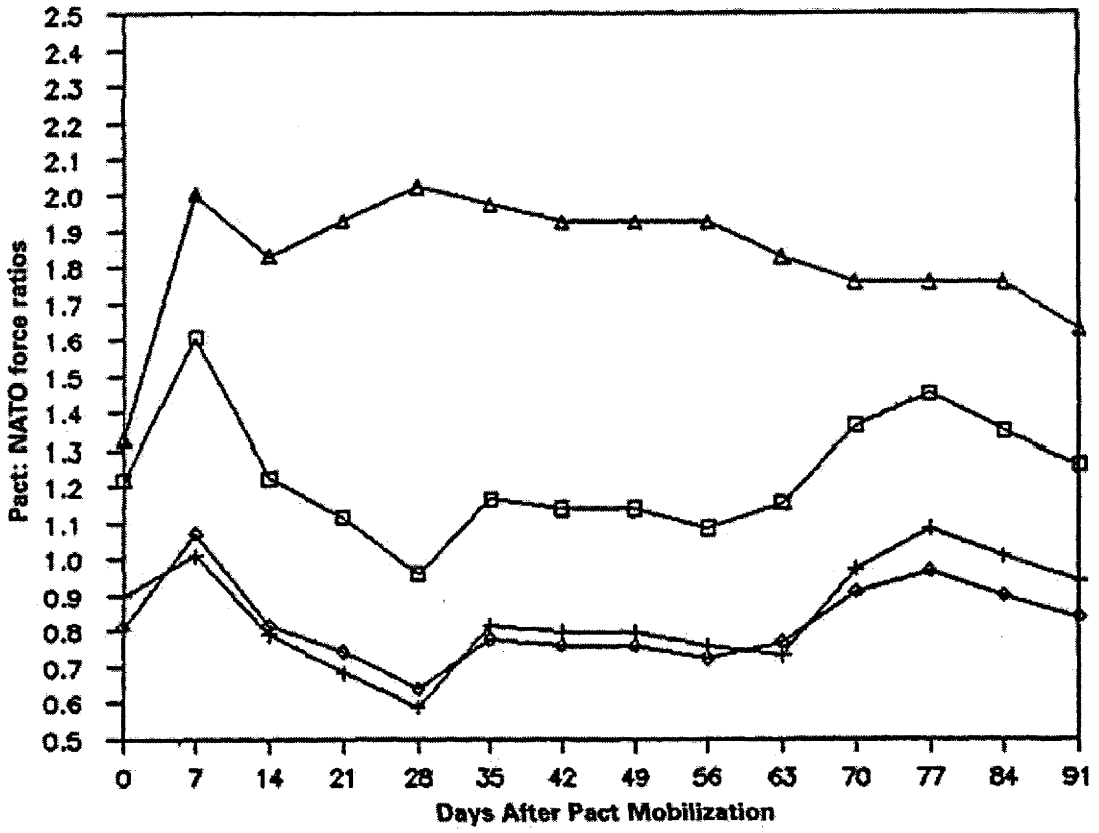
[634] See footnotes 225 and 290 in this thesis, and Lawrence Freedman, *US Intelligence and the Soviet Strategic Threat* (London: The Macmillan Press, 1977).

[635] For an example study from the end of the Cold War, see CSIS Resources Strategy Project, *NATO: Meeting The Coming Challenge* (Washington D.C.: Center for Strategic and International Studies, 1988).

[636] Haffa, *Rational Methods, Prudent Choices: Planning U.S. Forces,* pp. 56-65.

rested on the time component and tactical warning, especially the relative mobilization rates, of a conflict between NATO and the Warsaw Pact.[637]

FIGURE 28: EXAMPLE OF RELATIVE MOBILIZATION GRAPH



Note: The lines refer to different reinforcement options, the details of which are not of interest here. Barry R. Posen, 'Is NATO Decisively Outnumbered?,' *International Security*, vol. 12, no. 4 (Spring 1988), p. 188.

Robert P. Haffa writes that about a six-division US forward deployment in Germany was the size required to prevent a quantitative Soviet advantage early into the mobilization process, before M+9.[638] The overall size of the Army was then determined by considerations regarding reinforcement rather than deployment. About 15 US divisions were necessary to halt, in conjunction with NATO allies' forces, the Soviet attack, and since NATO alliance cohesion did not permit explicit planning on the basis of trading territory for time, this level of forces had to be available in the regular Army, and be in Europe by M+30.[639] These estimates were, of course, subject to a number of assessments and qualifications that changed over time and, due to the problems of

[637] Also see the hypothetical 'instructions' in Paul K. Davis, 'Planning Under Uncertainty Then and Now: Paradigms Lost and Paradigms Emerging,' pp. 20-23.

[638] I.e. nine days after mobilization (or M-) day. 'Divisions' in this context did not necessarily refer to the military unit as such, but often to analytical constructs such as the 'Armored Division Equivalent'. For a discussion of these metrics, see William P. Mako, *U.S. Ground Forces and the Defense of Central Europe* (Washington D.C.: The Brookings Institution, 1983), pp. 105-125.

[639] Haffa, *Rational Methods, Prudent Choices: Planning U.S. Forces,* pp. 52-56.

alliance cohesion mentioned above, did not always make much strategic sense.[640] Also, parameters that could be adjusted included not only force levels and deployment positions, but also logistical reinforcement capabilities (including, but not limited to strategic lift) as well as pre-positioning of materiel—all of which were extensively used. However, the overall framework of analysis in which these questions were raised remained the same, and graphs of relative force ratios over time, such as the example reproduced in Figure 28, were standard diet of US force planners.[641] In addition, smaller European NATO contingencies—such as the defence of Norway—also required US ground troops, but these paled in comparison with the force levels required on the Central Front.

Besides its role related to the strategic nuclear balance,[642] two main missions drove US Navy force structure planning during the Cold War—sea control and power projection. However, the quality of planning for the naval forces lagged behind those for the land forces, due to the absence of a similarly coherent framework of analysis. This was not the least since the purpose and importance of sea control was unclear, if NATO officially assumed a short land war of only 30 days duration. During the late 1970s and 1980s, however, the Navy began to plan for a protracted global war, which would involve both convoy protection and offensive operations against Soviet surface, as well as subsurface forces close to their home bases.[643] The difference between the '500' and '600' ship programs of the late 1970s and 1980s can thus largely be attributed to different assumptions and strategies at the *operational* level, which lead to different numbers of required carrier battle groups. In particular, the '600 ship Navy' includes forces for an offensive against Soviet naval and air forces on the Kola Peninsula, which was not part of the '500 ship' concept. In addition, the former includes additional carriers for convoy protection in the North Atlantic, which the latter substitutes with land-based aviation.[644]

US planning for a generic 'half-war' lacked codified rules for much of the Cold War, partly since a war in Europe would have involved a number of regions, such as Jutland or Norway, which in all likelihood would have required reinforcement by US projection forces anyway.[645] Overambitious strategic concepts, organisational and command chain conflicts and a lack of dedicated mobility resources severely hampered preparations for a half-war 'contingency of choice' that, by definition, was less important than the preparation for the global war of necessity. Although the Vietnam War was conceived of as a 'half-war', it was not commanded by STRIKE Command, established for such contingencies, and quickly devoured more than its fair share of military and political

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[640] See, for example, the comments in Congressional Budget Office, *U.S. Air and Ground Conventional Forces for NATO: Overview* (Washington D.C.: Congress of the United States, 1978), pp. 7-8.

[641] See, for example, the recommendations in Betts, *Surprise Attack: Lessons for Defense Planning*, esp. pp. 295-302.

[642] This included both US ballistic missile submarines, and attack submarines that were to hunt their Soviet counterparts.

[643] For the development of naval planning during that time, see John B. Hattendorf and Ernest J. King, 'The Evolution of the U.S. Navy's Maritime Strategy, 1977-1986,' *Newport Paper*, no. 19 (Newport, RI: Naval War College Press, 2004), esp. pp. 3-21, 37-91.

[644] Haffa, *Rational Methods, Prudent Choices: Planning U.S. Forces,* pp. 68-73.

[645] Congressional Budget Office, *U.S. Projection Forces: Requirements, Scenarios, and Options* (Washington D.C.: Congress of the United States, 1978), pp. 31-39.

capital. The conversion of STRIKE Command into Readiness Command in 1969, tasked with providing combat-ready forces for overseas duty in general, made clear that priority had decidedly shifted to planning the full war. During the 1970s, the sufficiency of US strategic lift capability, and the ability of large forces to deploy overseas within planned timelines, was significantly in doubt—underscored by the 'Nifty Nugget' exercise in 1978. Improvements, however, focussed on the reinforcement of Europe in a NATO contingency.[646] Implicit codification thus worked, in so far as the requirements of the full war that the United States had to win took precedence over those of the ill-defined 'half war' contingency, regardless of US declaratory policy.

However, the increasing concerns about the Gulf region led to studies of possible defence requirements in 1979.[647] The Rapid Deployable Joint Task Force (RDJTF) was stood up in Tampa as a dedicated command for operations in the region, and later transformed into US Central Command. On the basis of a defence build-up which raised the size of available conventional forces, the Reagan administration expanded the 1½ war standard to a '1 and 2 x ½' framework, comprising concurrent conflict in Europe, Korea and the Persian Gulf.[648] Forces identified for the Gulf were, however, still also assigned to other theatres. Paul K. Davis writes that

> Few remember this now, but these first programs [initiated in late 1979] were oriented more toward generic threats (e.g., Iraq) than toward the threat of a Soviet invasion. ... Ironically, and despite lip service to diversity, detailed military planning by the Joint Chiefs, the RDJTF, and services soon focused almost exclusively on the Soviet threat to Iran—virtually ignoring others such as the Iraqi threat to Kuwait.[649]

Until the end of the Cold War, *Threat-based Planning* focussed on the Soviet Union would thus remain the dominant US planning framework for all important theatres in which US forces might be engaged.

7.1.4 Force Structure

Throughout the Cold War, but in particular once the Vietnam War was lost and the comfortable margin of Western nuclear superiority had been allowed to erode, concern about the relative balance of power dominated US defence policy.[650] This concern with the central balance also drove the size and shape of conventional forces since, as discussed above, (nearly) all requirements in that area were derived from considerations regarding a global war against the Soviet Union.[651] When American defence capabilities required a series of 'quick fixes' in the early 1980s, a clear benchmark of

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[646] Haffa, *Rational Methods, Prudent Choices: Planning U.S. Forces,* pp. 75-101.

[647] Robert W. Komer, *Maritime Strategy or Coalition Defense?* (Lanham, MD: University Press of America, 1984), pp. 16-17.

[648] Kugler, *Policy Analysis in National Security Affairs: New Methods For a New Era*, p. 261.

[649] Paul K. Davis, 'Planning Under Uncertainty Then and Now: Paradigms Lost and Paradigms Emerging,' pp. 26-27.

[650] See, for example, the exemplarily comprehensive account in Patrick M. Cronin, *U.S.-Soviet Military Balance 1980-1985* (Washington D.C.: Pergamon Brassey's, 1985).

[651] See, for example, Barry M. Blechman, 'The Balance of Conventional Forces and the US Role in Assuring Regional Stability,' in *Proceedings of the National Security Affairs Conference 1977: Toward Cooperation, Stability and Balance*, pp. 55- 67

sufficiency was available in form of their estimated performance against the Soviet Union.[652] The US military after Vietnam was probably as close as the forces of a power with vital interests across the globe will ever come to being a pure hedge against a precisely defined strategic risk.[653]

In fact, a case could be made that this case study does not even meet the criteria set out in Section 1.1, namely that the thesis would study 'the material preparation for the possibility of war, but not of war itself.' Routine readiness levels during the Cold War, in particular in the area of strategic nuclear forces, were often such that it would have been a stretch to describe them with the term 'peacetime'. US attack submarines and other Anti-Submarine Warfare (ASW) forces were, over decades, engaged in very real operations against Soviet naval forces.[654] In the end, direct superpower confrontation only claimed the lives of a handful of pilots, but the Cold War was a very real war nevertheless—although escalation was, consistent with Clausewitzian theory, limited by the political objective.[655]

Weapons technology was an inherent part of the conflict.[656] Soviet technology drove requirements regarding the technological specifications of nearly all US weapons systems, probably nowhere more than in the area of electronic warfare.[657] One example among many, NATO Standard Tank Targets, based on the known criteria of Soviet tanks, were used in the development of western armour and anti-armour weapons. New Soviet weapon systems repeatedly required crash programmes as a reaction (often with less than satisfactory outcomes, such as the M60A2 tank).[658] Given the relatively precise technological requirements, procurement followed the 'grand design' approach of development, testing and large scale production.

US planning for the defence of Europe was, of course, inseparable from that of NATO as a whole.[659] US forces stationed in or marked for deployment to Europe would have fought with allied forces under combined NATO commands. The Alliance standing command structure for the Central Front consisted of four levels above national corps, and a whole range of other commands were concerned with the defence of the northern and southern flanks, the Channel, the Atlantic, or with rapid reaction and integrated

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[652] See, for example, W. Scott Thompson, ed., *National Security in the 1980s: From Weakness to Strength* (New Brunswick: Transaction Books, 1980).

[653] NATO (and neutral) frontline states during the Cold War, such as Germany, Norway or Sweden, and countries such as Taiwan or South Korea, can of course specialize their force even more, as the geographic dimension of the threat they face is even more limited.

[654] Cote, 'The Third Battle: Innovation in the U.S. Navy's Silent Cold War Struggle with Soviet Submarines.'

[655] Clausewitz, *On War,* pp. 90-91. See also Steven J. Cimbala, *Clausewitz and Escalation: Classical perspective on nuclear strategy* (London: Frank Cass, 1991), pp. 66-97.

[656] S.T. Possony and J.E. Pournelle, *The strategy of technology: Winning the decisive war* (Cambridge, MA: University Press of Cambridge, 1970).

[657] Alfred Price, *The History of U.S. Electronic Warfare*, vol. II: *The renaissance years, 1946 to 1964*, and vol. III: *Rolling Thunder through Allied Force, 1964-2000* (Arlington, VA: Association of Old Crows, 2000).

[658] David Miller, *The Cold War: A Military History*, pp. 265, 271-272.

[659] See John S. Duffield, *Power Rules: The Evolution of NATO's Conventional Posture* (Stanford: Stanford University Press, 1995), pp. 194-232.

military capabilities.[660] NATO war plans assigned each unit a specific role in the initial defence against the Warsaw Pact—most battalions would have known the location in which they were meant to enter the war down to the village. The plans for a NATO mobilization were of enormous scale, scope and specificity. A NATO General Alert would have easily seen the largest movement of men and materiel in the history of mankind, not only across the Atlantic, but also over the English Channel, through the Benelux countries, and within Germany itself.[661]

The focus on the NATO contingency, as discussed in the previous section, thus did not remain without consequence for the materiel and equipment of the US military:

> To illustrate the pervasiveness of the focus on Central Europe and global war, consider that as of the late 1970s, the United States had woefully inadequate strategic mobility, only very light Marine units, no mountain infantry, minimal ability to provide purified water to expeditionary units in places such as Saudi Arabia or Iran, helicopters that were highly vulnerable to desert dust, and very little capability aside from Marine amphibious units to land equipment "over the shore" where access to high-capacity ports was unavailable.[662]

Many of these deficiencies were reduced during the build-up of the 1980s, which added, for example, the 10th Mountain Division to the force structure in 1985. Requirements for deployment to the Persian Gulf, in particular, led to the strengthening of anti-armour capabilities of the air assault and airborne division, and the configuration of the 9th Infantry division into a force of combined arms battalions.[663] In their mix of airborne, infantry, mechanized and armoured ground units, forces earmarked for the RDJTF were thus similar to the composition of the 2 (GE) Corps that was to fight Warsaw Pact forces on the Czech border—both shaped by the particular demands of fighting delaying actions in complex mountainous terrain.[664] The defence effort as a whole, however, continued to be aligned with the relative importance of the disparate theatres—William W. Kaufman estimates that allocations in fiscal year 1986 were (in billion) $54.7 for

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[660] North Atlantic Treaty Organisation, *The North Atlantic Treaty Organization 1949-1989* (Brussels: NATO Information Service,1989), pp. 344-353.

[661] David Miller, *The Cold War: A Military History*, pp. 243-246. No wonder, then, that the plans were never comprehensively tested. Mobilization exercise 'Nifty Nugget' in 1978 led one commentator to write that "an army of some 400,000 of the best trained soldiers in the United States was sent to the plains of Central Europe. It probably died there. It had been equipped with some of the most lethal, most advanced high technology weaponry on the planet, but it did not have enough shells, missiles, fuel, food, spare parts or replacements to survive more than a few weeks ... As one high-level Pentagon planner explained it: "The army was simply attrited to death."" (John J. Fialka, 'The Grim Lessons of Nifty Nugget,' *Army*, vol. 30, no. 4 (April 1980), pp. 15.) Thus, improvements were always possible, and took the form of, for example, increased prepositioning, the establishment of the Joint Mobility Agency, and a number of other measures both physical and organisational. For a relatively positive assessment, see Jeffrey Simon, ed., *NATO-Warsaw Pact Force Mobilization* (Washington D.C.: National Defense University, 1988).

[662] Paul K. Davis, 'Planning Under Uncertainty Then and Now: Paradigms Lost and Paradigms Emerging,' p. 25.

[663] Karl E. Cocke, *Department of the Army Historical Summary Fiscal Year 1985* (Washington D.C.: Center of Military History, United States Army, 1995), pp. 60-62.

[664] See the forces mentioned in David Miller, *The Cold War: A Military History*, p. 233, and Richard A. Gabriel and Paul L. Savage, 'The United States,' in *Fighting Armies: NATO and the Warsaw Pact, A Combat Assessment*, ed. Richard A. Gabriel (Westport, CT: Greenwood Press, 1983), pp. 15-16.

nuclear weapons, $107.2 for the conventional defence of Central, Northern and Southeastern Europe (excluding the Atlantic), $34.6 for Korea, the Pacific and Indian Oceans, and only $20.9 for the Persian Gulf.[665]

In summary, the risk pattern during the Cold War was one of *Clear and Present Danger*, dominated by the Soviet Union. The US theory of victory of containment was implemented by a detailed military strategy specifically tailored to that threat, and aimed at directly reducing the likelihood (and consequences) of war in Europe. Requirements to treat the Soviet risk were directly derived from that theory through net assessment. The US force structure was a specialized hedge against the Soviet threat, even in the half-war contingency in the Gulf. Procurement followed the 'Grand Design' approach and even technological specifications of equipment directly flowed from their role in meeting Soviet forces. US defence planning during the Cold War thus shows all defining traits of *Threat-based Planning.*

7.2 Australia—The 1987 *Defence of Australia* White Paper

Differences regarding the interpretation of political guidance between civilian and military officials in the Australian Department of Defence escalated in the early 1980s, to a point where "almost a civil war then raged in the organization."[666] At the heart of the controversy were the relative importance of low and higher-level contingencies in the framework of the 1976 White Paper, and force structure consequences that flowed from them. The Joint Committee on Foreign Affairs and Defence's inquiry into *Threats to Australia's Security* in 1981 is instructive for understanding that controversy, as its list of low-level threats seems highly influenced by the activities of Palestinian and Communist terrorists in Europe and the Middle East at the time.[667] Most of the threats considered were closer to peacetime, routine tasks of the defence force than to more traditional defence emergencies—indeed, the Committee defined low-level contingencies as "those threats which can be dealt with within the peacetime organisation and structure of the Defence Force."[668]

Such an argument was close to being a tautology. There was no minimum boundary for a 'low-level' contingency in such a framework, and a defence force structured to meet primarily these types of threats could in theory degenerate to a paramilitary back-up force to civilian authorities. But the 'Core Force' concept, the White Paper's call for a capability to deter escalation, and the activity of Soviet maritime forces in the Pacific and Indian Oceans still required the ability to meet higher level threats. The tension between these two positions was never resolved by explicit guidance from the political leadership.[669]

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[665] William W. Kaufmann, *A Reasonable Defense* (Washington D.C.: The Brookings Institution, 1986), p. 14. It would have been difficult to even split up the defence budget in this way after the Cold War.

[666] Andrews, *The Australian Centenary History of Defence, Vol. V: The Department of Defence,* p. 245.

[667] Joint Committee on Foreign Affairs and Defence, *Threats to Australia's Security: Their Nature and Probability*', p. 48.

[668] Ibid., p. 48.

[669] See Stewart Woodman, 'Defending the Moat: Maritime Strategy and Self-Reliance,' in 'In Search of a Maritime Strategy: The maritime element in Australian defence planning since 1901,' *Canberra Paper*, no. 119, ed. David Stevens (Canberra: Strategic and Defence Studies Centre, Australian National University, 1997), pp. 122-123.

In order to break the stalemate within the Defence organisation and to arrive at a more coherent, precise and less divisive basis for defence planning, the Minister of Defence Kim Beazley commissioned Paul Dibb to write a *Review of Australia's Defence Capabilities* in 1985. The recommendations of the 1986 Dibb Review then formed the basis for the subsequent 1987 *Defence of Australia* White Paper.[670]

7.2.1 Risk Pattern

The assessment in the 1987 White Paper of Australia's overall strategic environment is quite similar to that in its 1976 predecessor: As before, the priority for the Australian defence effort is seen in its region and not in a contribution to the Cold War central balance, although it does spell out Australian commitments in this regard more clearly:[671]

> In the remote contingency of global conflict Australia would have regard in the first instance to the situation in our immediate region. Our responsibilities would include those associated with the Radford-Collins Agreement for the protection and control of shipping .... Subject to priority requirements in our own area the Australian Government would then consider contributions further afield.[672]

The White Paper remarks that "[i]n general, Australia's strategic environment is favourable",[673] and

> that Australia's bilateral relations with its major allies and with neighbouring countries are basically sound, notwithstanding the political fluctuations which inevitably occur from time to time. No neighbouring country harbours aggressive designs on Australia, and no country has embarked on the development of the extensive capabilities to project maritime power which would be necessary to sustain intensive military operations against us.[674]

In addition, the White Paper reiterates its predecessor's judgement regarding the gravity of a potential decision to attack Australia:

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[670] Department of Defence, *The Defence of Australia* (Canberra: Commonwealth of Australia, 1987), p. 2. With regards to their defence planning concepts, both documents only differ in details and emphasis. The following discussion will therefore concentrate on the authoritative political guidance as outlined in the White Paper, but draw significantly on the Dibb Review for codification and strategic guidance, as they are discussed in more detail in that document.

[671] Much of the criticism of Defence of Australia has, despite assertions of the critics, nothing to do with defence planning or even strategy and everything with political views regarding Australia's place and role in the world. See, for example, Michael Evans, 'The Tyranny of Dissonance,' *Study Paper*, no. 306 (Canberra: Land Warfare Centre, 2005).

[672] Department of Defence, *The Defence of Australia*, p. 3. Accordingly, the Collins Class submarine was designed to be capable of long-distance operations against Soviet fleets in the Pacific. Maryanne Kelton, 'New Depths in Australia-US Relations: The Collins Class Submarine Project,' *Canberra Paper*, no. 162 (Canberra: Strategic and Defence Studies Centre, 2005), p. 4.

[673] Department of Defence, *The Defence of Australia.*, p. 13.

[674] Ibid., pp. 19-20.

> Any decision to embark upon hostilities as a deliberate act of state policy is a major one for any government to make. ... Much would need to change, therefore, in our international position for the possibility of such conflict to arise.[675]

As the 1976 White Paper, its successor concludes the existence of uncertainties about Australia's future security situation, and the potential for future interference by external powers:

> Our assessments now depict a regional situation with underlying strengths, albeit with many uncertainties.[676]

> Major changes in regional relationships or internal instability in individual countries in South-East Asia could introduce or expand uncertainties in Australia's strategic prospects, even though developments may not be directly threatening to us. Tensions between nations in South-East Asia could provide opportunities for increased involvement in the region by unfriendly or contending powers.[677]

Like its predecessor, it also identifies the super power balance as one possible cause for the deterioration of Australia's security situation:

> A redistribution of power in favour of the Soviet Union in the central balance, or an extension of Soviet influence in our region at the expense of the United States, would be a matter of fundamental concern to Australia, and would be contrary to our national interests.[678]

Compared with the previous White Paper, the discussion of the global balance has however lost much of its urgency and detail.[679] Australia's situation has improved, not least since the "formation and consolidation of the Association of South-East Asian Nations (ASEAN) has not only benefited those nations but has also been of strategic benefit to Australia."[680] While the 1976 White Paper had shown itself quite concerned about the significance of Soviet expansion in Southern Africa and the Horn of Africa, the 1987 White Paper can conclude that

> Uncertainties in South-East Asia relate principally to:
>
> - economic and political problems in the Philippines;

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[675] Ibid., p. 30.

[676] Ibid., p. 14.

[677] Ibid., p. 13.

[678] Ibid., p. 3.

[679] The Dibb Review had been even more sanguine on the relevance of the Cold War and Soviet expansionism for Australia than the White Paper itself (see, for example, Dibb, *Review of Australia's Defence Capabilities*, pp. 26, 31-32, 47). In these judgements, which proved correct, he showed himself much less concerned than only a few years before. See Paul Dibb, 'World Political and Strategic Trends Over the Next 20 Years—Their Relevance to Australia,' *Working Paper*, no. 65 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1983); Paul Dibb, 'Soviet Capabilities, Interests an Strategies in East Asia in the 1980s,' *Working Paper,* no. 45 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1982).

[680] Department of Defence, *The Defence of Australia*, p. 14.

- the unresolved question of the political future of Cambodia ... [and];
- the establishment of the Soviet military presence in Cam Ranh Bay.[681]

In some respects, the focus of concern regarding significant adverse developments had shifted from South East Asia to the South West Pacific. This area had seen the retreat of European powers and independence of several new states over the previous ten years, with resulting instability in Vanuatu, Fiji and New Caledonia as well as Soviet and Libyan activities.[682] Here, "[t]he fragile and narrowly based economies of the South West Pacific countries will continue to present opportunities for exploitation by external powers."[683]

Given these uncertainties, the 1987 White Paper comes to the same fundamental conclusion as its predecessor, that the basis of Australian defence policy must be one of insurance against the *incertitude* that affects the—generally positive—outlook:

> Australia's defence interest is not confined to the presence or absence of military threat itself. We are concerned with developments that could either support Australia's security or have the potential to lead to a military threat. Prudent defence policy must insure against uncertainties and the risk that they might resolve unfavourable to our interests.[684]

With regards to the development of capabilities for the invasion of the continent or a major enemy lodgement, the 1987 White Paper writes that it would not only "imply dramatic change, not now in prospect, to a belligerent and provocative external policy on the part of a neighbouring country," but also that the alternative of a "major strategic lodgement in the northern archipelago by an external power" is "also now a remote prospect given the increased strategic resilience of our ASEAN neighbours."[685] However, "[d]ifferent considerations apply when low level threats are contemplated. ... The capabilities required are much less and already exist in a number of countries."[686] Moreover,

> The political problems which might lead to low level threats are more diverse in nature than those which might invite more substantial attack. Less time would be needed for

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[681] Ibid., p. 14.

[682] See David Hegarty, 'Libya and the South Pacific,' *Working Paper*, no. 127 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1987); David Hegarty, 'South Pacific Security Issues: An Australian Perspective,' *Working Paper*, no. 147 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1987)

[683] Department of Defence, *The Defence of Australia*, p. 18.

[684] Ibid., p. 20.

[685] Ibid., p. 26. The defence of Papua New Guinea against Indonesia is the one (relatively) high-intensity contingency that was much more realistic, but which—for obvious reasons—was never discussed in any detail in public documents. Open source analysis make a convincing case, however, that the capability programs discussed below would have provided appropriate means to deal with such a situation as well. See, for example, Ross Babbage, 'The Dilemmas of Papua New Guinea (PNG) Contingencies in Australian Defence Planning,' *Working Paper*, no. 128 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1987).

[686] Department of Defence, *The Defence of Australia*, p. 30.

> an adversary to prepare and Australia would also have less time to mount a military response.[687]

The two central judgements regarding the risk pattern in the 1987 White Paper[688] are thus that, first, due to

> the severe consequences if such threats [of invasion or major lodgement] emerged over a longer time-scale, Australian defence policy and force structure planning cannot ignore them,[689]

but that, second,

> the Government has directed that priority be given in defence planning to ensuring adequate and appropriate capabilities exist within the Defence Force to deal with [low-level] pressures.[690]

As in the 1976 White Paper, attention to future risk was thus paid on the basis of the precautionary principle since developments that could lead to major threats in the long term were affected by significant uncertainty. But the present risk of low-level conflict is addressed on the basis of risk-aversion, not precaution: The assessment of even low-level conflict being very unlikely, given Australia's friendly relations with its neighbours, is not affected by any severe uncertainties at all; nor, as discussed below, were the possible forms that low-level harassment could take regarded as particularly uncertain. Confidence in the long-term stability of Australia's strategic environment thus became greater, and as did risk-aversion regarding a present, and fairly well known, particular risk. Overall, the 1987 White Paper thus shifted to dealing with a *Clear and Present Danger,* which, as discussed below, had important consequences both for the way political guidance could be codified, and the force structure concept that would be used to treat the risk.

7.2.2 Theory of Victory and 'Defence in Depth'

The 1987 White Paper lists three complementary ways in which the Government wants to reduce strategic risk, and which form the rough outline of a theory of victory:

- maintaining and developing capabilities for the independent defence of Australia and its interests;
- promoting strategic stability and security in our region; and
- as a member of the Western strategic community working for a reduction in the level of tension between the superpowers and limiting the spread of influences in our region inimical to Western interests.[691]

The White Paper writes that

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[687] Ibid.

[688] Both are spelled more explicitly in Dibb, *Review of Australia's Defence Capabilities*, p. 55.

[689] Department of Defence, *The Defence of Australia*, p. 26.

[690] Ibid., p. 30.

[691] Ibid., p. vii.

> Australia is part of the Western community of nations. Australia therefore supports the ability of the United States to retain an effective strategic balance with the Soviet Union.[692]

But Australia has to accept that "[t]here are limits to our defence capacity and influence,"[693] and that "[s]upport for the positions of allies and friends in this [wider Indian and Pacific Ocean] region must be predominantly diplomatic."[694] Significant capability implications of the support of wider Western interests are thus limited to the joint facilities,[695] but forces procured for other tasks could be made available if warranted: Explicitly mentioned in this context is the possibility of using the RAN's FFGs as part of US carrier battle groups.[696]

With regard to cooperation within Australia's region of strategic interest, defence support to the South-West Pacific primarily consists of training and surveillance assistance, although the Government continued the Pacific Patrol Boat project.[697] In South East Asia, Australia concentrates on "practical co-operation with the countries of ASEAN in activities of common defence interest."[698] It remains committed under FPDA to participating in the Integrated Air Defence System,[699] rotating RAAF aircraft through Malaysia and Singapore, leaving a rifle company in Malaysia[700] and conducting regular surveillance of the South China Sea by P-3C Orions from Butterworth[701]— activities which all relate to the employment rather than the structuring of the defence force. While the stabilization of the region was thus an important part of Australia's wider theory of victory to treat strategic risk,[702] its relevance to defence planning, and especially to force planning, was in fact very small.

The only task used for force structure determinations proper was thus the defence of Australia, since

> Meeting our requirements for the defence of Australia will provide the Government with practical options for use of elements of the Defence Force in tasks beyond our area of direct military interest in support of regional friends and allies. It is therefore not

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[692] Ibid., p. 3.

[693] Ibid., p. 8.

[694] Ibid., p. 13.

[695] Ibid., pp. 10-11. For a more detailed, contemporary discussion of Australia's support to the United States, see Thomas-Durrell Young, 'Assessing the 1987 Australian Defence White Paper in the Light of Domestic Political and Allied Influences on the Objective of Defence Self-Reliance,' *Working Paper,* no. 152 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1988).

[696] Department of Defence, *The Defence of Australia*, p. 3.

[697] Ibid., p. 18.

[698] Ibid., p. 15.

[699] Ibid., p. 16.

[700] Ibid., p. 7.

[701] Ibid., p. 16.

[702] See also Graeme Cheeseman and Michael McKinley, 'Australia' Regional Security Policies 1970-1990: Some Critical Reflections,' *Working Paper*, no. 101 (Canberra: Peace Research Centre, Australian National University, 1990), pp. 15-20.

> necessary that such contingencies should themselves constitute force structure determinants.[703]

Australia's military strategy for the defence of Australia as laid down in the 1987 White Paper can best be described with reference to the strategy of denial defined in the Dibb Review. Dibb did not see a major role for long-range strike and interdiction forces, particularly in low-level conflict, as there would be political restraints on their use against the enemy homeland.[704] Instead, his strategy was heavily based on maritime capabilities able to interdict enemy forces in the sea-air gap to Australia's north. Dibb wrote that

> a strategy of denial would present an enemy with a series of interlocking barriers to an attack on Australia, as follows:
>
> - First, we require extremely high quality and comprehensive intelligence ... [and b]road area surveillance ... . The possibility of a surprise attack will be denied the enemy. ...
>
> - Second, Australia's air and naval forces must have the capacity to destroy enemy forces, at credible levels of threat, in the sea and air gap. ...
>
> - Third, closer to our shores, defensive capabilities are required to prevent enemy military operations in our focal areas or shipping lanes or on our territory. ...
>
> - Fourth, ... we would need ground forces capable of denying the enemy our vital population centres and military infrastructure.[705]

The 1987 White Paper's 'defence in depth' retained these four layers as the basis of Australia's strategy. It did not however share the Review's scepticism regarding the utility of long-range strike forces, writing that "the ability to conduct such operations [against the enemy homeland] would allow an important option."[706] In some regards, it was thus closer to a concept of operations developed by the RAAF in previous years that focused on the need to prevent a lodgement of enemy forces by maritime strike against the adversary's bases, forces in transit towards the continent and enemy SLOC.[707] In the end, both the unclassified versions of 'defence in depth' and Dibb's strategy of 'denial', in particular, came under justifiable criticism of being too reactive and not proposing any leverage over the enemy.[708] For the purposes of the argument

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[703] Department of Defence, *The Defence of Australia*, p. 6. See also p. 8.

[704] Dibb, *Review of Australia's Defence Capabilities*, pp. 36, 66.

[705] Ibid., p. 51.

[706] Department of Defence, *The Defence of Australia*, p. 25.

[707] David Evans, *A Fatal Rivalry: Australia's Defence at Risk* (Melbourne: The MacMillan Company of Australia, 1990), pp. 21-24; Alan Stephens, *Power plus Attitude: Ideas, Strategy and Doctrine in the Royal Australian Air Force 1921-1991* (Canberra: Australian Government Publishing Service, 1992), pp. 164-168.

[708] See, for example, Babbage, 'Looking Beyond the Dibb Report;' and Desmond Ball, 'Notes on Paul Dibb's Review of Australia's Defence Capabilities,' *Reference Paper,* no. 143 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1986). See also the surveys in Andrew Mack, 'Defence Versus Offence: The Dibb Report and its Critics,' *Working Paper,* no. 14 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1986), esp. pp. 1-5; and Matthew Gubb,

here, however, the appropriateness of the strategy is secondary to the fact that it established, for the first time, authoritative political guidance regarding the way that the ADF should treat strategic risk, and that it was directly tailored to reduce the risk of low and escalated-low level conflict.

7.2.3 Codification of Requirements

As discussed above, the 1987 White Paper directed the ADF to prepare to meet first the present risk of low-level conflict, and second the future risk of a significant deterioration of Australia's strategic circumstances. Given the clear prioritisation between the two and the fact that the latter task had already been the, albeit contested, focus of defence planning in previous years, it is perhaps not surprising that neither the White Paper nor the Dibb Review contain any specific comments on how requirements regarding the latter risk should be codified. Instead, they directly contain force structure decisions, discussed in more detail in the following section, that significantly cut back capabilities only required on the basis of expansion base considerations. It can thus be inferred that the ten years of strategic warning time presumed in authoritative political guidance were seen as sufficient to expand minimal capabilities. The Dibb Review wrote with regards to capabilities for conventional land conflict that it

> is not in a position to draw detailed conclusions on the levels of organization that would be adequate to retain the appropriate skills against the somewhat remote possibility of their use as an expansion base, but the overriding principle should be that the allocation of resources remain constrained.[709]

Given the reduced emphasis on the expansion base, capabilities only justified due to their contribution to this task, such as medium artillery or tanks, were thus to be kept at a level that was the minimum necessary to retain essential skills, and generally in integrated regular-reserve units. Only the quality or type of present capabilities required for the expansion base was now to be considered. Quantitative considerations, which had been central to the expansion path studies of the 'Core Force' concept, were the victim of the demotion of future risk to second rank.

'How Valid was the Criticism of Paul Dibb's 'Review of Australia's Defence Capabilities'?,' *Working Paper,* no. 164 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1986). The Dibb Review did, however, contain the statement that "[a] manifest capability to threaten bases from which an adversary's air and naval forces could attack Australia direct would be a disincentive to the use of those forces, and an inhibition on their deployment." (Dibb, *Review of Australia's Defence Capabilities*, pp. 65-66.) Stewart Woodman also criticizes the Dibb Review as missing a proper ADF operational strategy, which arguably led to an overemphasis on simultaneous naval coverage of several focal areas (Woodman, 'Defending the Moat: Maritime Strategy and Self-Reliance,' pp. 128-135.). In some regards, the Australian strategic community at that time had not completely overcome the limitations that had plagued it since the end of 'Forward Defence.' Embryonic joint operational headquarters had only recently been established, and both the Dibb Review and the 1987 White Paper consequently urged to increase jointness in capability as well as operational planning. (Dibb, *Review of Australia's Defence Capabilities,* pp. 28-30, 90-93, 148; Department of Defence, *The Defence of Australia*, pp. 60-62.) Indeed, Woodman acknowledges that "the impetus [the Dibb Review and 1987 White Paper] gave [to the development of joint operational doctrine] may eventually be seen as their most significant contribution to the defence of Australia." (Woodman, 'Defending the Moat: Maritime Strategy and Self-Reliance,' p. 136.)

[709] Dibb, *Review of Australia's Defence Capabilities*, p. 87

The main innovation of the Dibb Review was the way it codified requirements for low and escalated low-level conflict. In line with the theory developed in this thesis, the Review used considerations regarding available intelligence information, geography and other dimensions of strategy, and warning time considerations for this task. However, it was still an exercise in coming to terms with the general lack of an observable threat, and the combination of deduction and abduction used to infer requirements distinguishes the Dibb Review from the ideal case of *Threat-based Planning*. It is this methodology that lies at the core of much of the controversy that the Review can elicit to this day.

Since Australia's priority risk of low and escalated low-level risk was a present one, a plethora of intelligence information could be obtained about Indonesian capabilities and used in Australian defence planning. The 1987 White Paper thus writes that "[t]he limits of escalated low-level conflict would be set at any one time by the military capabilities that could practically be brought to bear against Australia's interests,"[710] defining a pivotal rule that could be used by the wider national security community to assess this type of strategic risk and monitor it in the future.[711] Unlike the concept of low-level conflict of the 1981 Joint Committee Report mentioned above, the concept developed in the Dibb-Report thus had relatively clear upper as well as lower bounds.[712] With regards to capabilities in the wider sense, such as military forces, organisation, economic resources and infrastructure, the present risk defined in the 1987 White Paper was located towards the right hand side of the spectrum in Figure 15, where the amount of available information is sufficient to define specific risks and design tailored risk treatment programmes.

However, low and escalated low-level conflict were addressed on the basis of a high risk aversion towards a purely hypothetical situation, as no information was available that signalled any intention on the part of Australia's neighbours to use military force against the country. There was, therefore, no 'hard' information available regarding the enemy's political goals, and only historical experience with enemy strategy and tactics from Konfrontasi and the invasions of East Timor and West Papua, all of which were settings very much different in both political and geographic[713] terms to that postulated in the Dibb Review. Intelligence information regarding capabilities and considerations regarding geography and warning time thus could not *a-priori* be analysed in deductive terms, as it was by no means clear what function they would have in the unknown enemy theory of victory. Instead, 'missing' information regarding enemy intentions and strategy had to be postulated on an abductive basis—a point freely admitted by the Dibb Review when it writes about low and escalated low-level conflict that "[t]hese assessments simply represent judgements of what might be possible, given potential

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[710] Department of Defence, *The Defence of Australia*, p. 25. See also Dibb, *Review of Australia's Defence Capabilities*, p. 38.

[711] Paul Dibb, 'The Conceptual Basis of Australia's Defence Planning and Force Structure Development,' *Canberra Paper*, no. 88 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1992), pp. 9-11.

[712] Criticism that warning time for high-level conflict was shorter than officially assumed because of the risk of escalation of low-level conflict was therefore at odds with strategic guidance. See for example Ball, 'Notes on Paul Dibb's Review of Australia's Defence Capabilities,' p. 5.

[713] With regards to the distance from Indonesian bases of operations.

military capacities, should conflict arise."[714] However, abduction can only establish a possible cause but never a necessary relationship—in other words, reasoning in this way could never on its own provide a basis for a decision on which of all the possible enemy intentions or strategies to prepare for.

Neither the Dibb Review nor the 1987 White Paper explicitly addresses this issue. However, both seem to presume an enemy intent on causing the ADF maximum difficulty without resorting to operations that could be considered unreasonable[715] in Australian (or generally Western) eyes: The Dibb Review, for example, dismisses the possibility of larger-scale lodgements during escalated low-level conflict on the basis of "the key judgement that a continuing campaign of raids could cause us significantly more difficulties than would an attempted lodgement with inadequate forces."[716] Although the enemy postulated in the 1987 White Paper was thus one that decided to attack Australia not long after an abrupt end to what was an amicable relationship, he was expected to do so in a strictly rational fashion. Perhaps inevitably, given the very small likelihood of the risk to be treated, some facets of the postulated threat were thus awkward to reconcile and could make the whole logical edifice seem somewhat unreal. However, certainty about current enemy capabilities thus led to certain requirements—albeit only on an *abductive* basis.

The way in which the 1987 White Paper makes use of warning times is closely related to its use of the enemy's capabilities as the benchmark for low and escalated low-level conflict. It reiterates several of the 1976 White Paper's points regarding the role of strategic warning to signal changes in risks and dimensions of risk, rather than of direct threats;[717] the importance of monitoring the international environment to provide maximum reaction time; the fact that changes in capabilities as well as in political intentions could be used for this task; and the judgement "that higher levels of threat could emerge only after a longer period of time."[718] These assessments reflected concepts developed by Australian intelligence and defence organisations throughout the 1970s, which were based on a detailed analysis of the capabilities necessary to mount operations across the sea-air gap to Australia's north.[719] However, in the case of low and escalated low-level conflict the enemy by definition did not need to add to his military capabilities, and it is consequently seen as "possible with relatively little warning"[720]—Dibb later wrote of several months during which political relations would

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[714] Dibb, *Review of Australia's Defence Capabilities*, p. 54.

[715] For a discussion of the problems associated with concepts of reasonableness and rationality in the defence planning and strategy context, see Payne, *Deterrence in the Second Nuclear Age.*

[716] Dibb, *Review of Australia's Defence Capabilities*, p. 79.

[717] The official position regarding warning time was thus more appropriate than sometimes suggested by criticism of inadequate defence reaction times (if not inadequate warning times), such as, for example, Ross Babbage, 'What's Wrong With the Defence White Paper?,' *Reference Paper*, no. 149 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1987), pp. 1-3.

[718] Department of Defence, *The Defence of Australia*, pp. 29-30.

[719] Dibb, 'The Conceptual Basis of Australia's Defence Planning and Force Structure Development,' pp. 1-8. For summaries of criticisms of this judgement, largely from outside the official sphere, see Gubb, 'How Valid was the Criticism of Paul Dibb's 'Review of Australia's Defence Capabilities'?, pp. 5-7.

[720] Dibb, *Review of Australia's Defence Capabilities*, p. 40.

deteriorate.[721] Since the definition of present risk is directly tied to present enemy capabilities, strategic warning about changing *risks* thus becomes equivalent to the tracking of regional capability plans. And since the ADF is directed to prepare for low and escalated low-level conflict even though no hostile intentions have been detected, warning over shorter time-scales reduces to tactical warning about the *realization* of that risk—hence the Review's emphasis on forestalling surprise attacks by use of, for example, Over The Horizon Radar (OTHR).[722]

This use of warning is thus the corollary of addressing low and escalated low-level risk on the basis of a high risk aversion, as it effectively eliminates the danger for Australia of strategic surprise *within the range of threats considered in the concepts of low and escalated low-level conflict.* Given the lack of observable threats in the short term, Australia *a-priori* found itself in a situation of *ignorance*, in the terminology of Figure 5. Defining escalated low-level conflict by referring to known (potential) enemy capabilities was thus equivalent to the transformation of this *ignorance* under open expectations into more precisely defined *risks*. The question of which abductively defined potential enemy operations to consider is thus closely related to the question of the extent to which expectations within the framework of low and escalated low-level conflict really were open, or how significant the residual potential for surprise.

The use of geography to codify political guidance in the 1987 White Paper and Dibb Review is relatively straightforward. As the main risk to be treated was a present one, infrastructure and settlement patterns during conflict could be assumed to be unchanged from their present state. The Review's strategy of denial was already developed on the premise that "[t]hrough a strategy based on the fundamentals of our geographic location we can maximise the benefits of an essentially defensive posture in our neighbourhood."[723] In order to derive strategic guidance, the strategy's individual layers thus had to be defined in a more detailed form, in context with ADF and enemy capabilities. Geography thus provided the stage for a net assessment analysis, which could also include more tentative assessments of other dimensions of strategy, such as the Australian public's willingness to incur the costs of harassments, or the effectiveness of civil-military coordination and other organisational issues.

Although the term was not commonly used in Australia at the time, net assessment was indeed central to the Australian defence planning framework in the 1987 White Paper.[724] It states that

> To have significance for our planning, potentially opposing capabilities must be assessed in terms of their ability to project military force against Australia in the face of our offensive and defensive capabilities, and in terms of the rationale that would underlie possible forms of military action ...[725]

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[721] Dibb, 'The Conceptual Basis of Australia's Defence Planning and Force Structure Development,' p. 9.

[722] Dibb, *Review of Australia's Defence Capabilities,* p. 51.

[723] Ibid., p. 42.

[724] Brice Pacey highlighted this fact at the time and argued that it required a new approach to analytical studies in the defence organisation. See Pacey, 'The Potential Role of Net Assessment in Australian Defence Planning.'

[725] Department of Defence, *The Defence of Australia*, p. 25.

In a deductive net assessment analysis, known enemy and ADF capabilities could be pitted against each other in the known arena of geography, and in the context of the known Australian polity at large. As discussed above, information about the enemy's theory of victory at large was not available and had to be abductively postulated, which made the resulting requirements conditional on the validity of these assumptions. The Dibb Review also repeatedly highlighted planning shortcomings, writing that "our inability to assess the overall sustainability of our forces even in low-level combat remains a significant deficiency",[726] and that

> our practical understanding of expansion for the defence of Australia is lacking. Continuing study and planning is required, especially of the implications for levels of manning, spares and ammunition, and for the possibility of concurrent operations in our area of direct military interest.[727]

Any advance in these areas would, of course, contribute to refining and improving the results of the net assessment analysis. These were, however, problems of the implementation rather than the conception of that method. With these two caveats, the deductive process of net assessment allowed the definition of requirements that could be both detailed and related with high certainty to the challenges posed by the scenario of low and escalated low-level conflict.

Based on a net assessment analysis of enemy capabilities, Australia's forces and the structure of Australia's economy and trade routes, for example, the 1987 White Paper could reject the complete interdiction of Australia's overseas trade as a credible threat outside a situation of global war, but identify the selective interdiction of coastal traffic as an attractive option for the enemy.[728] The prediction that

> The paucity of population and of transport and other infrastructure in northern Australia, and the nature of the land, would tend to focus military operations of substance on a few areas ...[729]

ultimately flows from a net assessment analysis, as does the assessment that "[t]he use of limited military force to harass ... would pose significant problems for us."[730] It is predicted that "the adversary could, if he wished, sustain a low level activity virtually indefinitely,"[731] but that at the same time

> His calculations would need to take account of our force structure and the probability of his forces suffering heavy attrition through clashes with the ADF and the expectation that escalation would allow Australia greater freedom in the use of its strike assets.[732]

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[726] Dibb, *Review of Australia's Defence Capabilities*, p. 146.

[727] Ibid., p. 95.

[728] Department of Defence, *The Defence of Australia*, pp. 27-28.

[729] Ibid., p. 21.

[730] Ibid., p. 21.

[731] Ibid., p. 24.

[732] Ibid., p. 25.

Net assessment is also the basis for the judgement, already mentioned above, that "[t]he arguments against the likely success of [larger-scale] conventional lodgements are substantial",[733] since

> Even if sufficient forces survived the transit and were not met by Australian ground forces, they would face eventual and comprehensive destruction as we cut off lines of communication and mobilised for their defeat our considerable national assets in the largely invulnerable industrial heartland of the south and south-east.[734]

7.2.4 Force Structure Concept

Since political guidance directed the ADF to deal with two distinct risks, two different sets of requirements had to be fulfilled by the same overall ADF force structure. As it was obviously impossible to know whether either of these two risks would actually materialize, the situation at its most basic level called for a portfolio of forces that could provide suitable combinations to meet either of them—although, as mentioned above, political guidance established a clear order of priority between the associated hedge and option. Some capabilities were thus included in the force structure only because of their contribution to one or the other task—tanks as part of the expansion base, for example. But since the whole portfolio of forces would have been available to meet either threat, it was legitimate and necessary to study how to make best use of all capabilities in either situation.[735] Although tanks could thus be assigned a role in low-level conflict, it was important to distinguish this role from the justification for their existence as a capability in the first place.

With regard to expansion base planning for dealing with future risk, both the 1987 White Paper and the Dibb Review endorse the continued use of options.[736] Australia's approach to meeting future risk was thus to remain that of maintaining specific capabilities not for their present operational value, but since they provided the option of expanding should circumstances in the future require to do so. Both the Review and the 1987 White Paper thus identify various capabilities such as ASW technology,[737] surface-to-air missiles,[738] and conventional armoured operations[739] as primarily or only

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[733] Dibb, *Review of Australia's Defence Capabilities*, p. 82. There must however be significant doubts about the validity of this judgement regarding the Christmas and Cocos islands, especially in the case of concurrent threats to the mainland. For the difficulty of defending these overseas territories, see for example Ross Babbage, 'Christmas and the Cocos Islands: Defence Liabilities or Assets?,' *Working Paper*, no. 129 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1987).

[734] Dibb, *Review of Australia's Defence Capabilities*, p. 83.

[735] The Review, for example mentions the use of armour in the Darwin/Tindal region. (Ibid., p. 86). It also noted that "A number of force units contain capabilities relevant to both lower and higher levels of conflict. Thus selectivity in levels of readiness within a capability or platform may be appropriate." Dibb, *Review of Australia's Defence Capabilities*, p. 56.

[736] Department of Defence, *The Defence of Australia*, p. 27; Dibb, *Review of Australia's Defence Capabilities*, p. 49.

[737] Department of Defence, *The Defence of Australia*, p. 38; Dibb, *Review of Australia's Defence Capabilities*, p. 62..

[738] Department of Defence, *The Defence of Australia*, p. 50; Dibb, *Review of Australia's Defence Capabilities*, pp. 77, 134.

[739] Department of Defence, *The Defence of Australia*, pp. 27, 59; Dibb, *Review of Australia's Defence Capabilities*, pp. 86-88.

justified due to expansion base considerations.[740] But as discussed in the previous section, capabilities justified only through their contribution to the expansion base were to be kept at a minimum level.[741]

Since the present risk of low- and escalated low-level conflict was addressed on the basis of an (abductive) framework of net assessment, there was sufficient information available to deductively infer the effect of ADF capabilities on the likely outcome of a conflict. Requirements could thus be defined with sufficient detail and confidence[742] to use hedging in the form of a force-in-being optimised for the task. With regards to readiness, for example, a clear hierarchy could be established between surveillance forces, initial response forces, and follow-up forces as well as capabilities only required for high-intensity conflict.[743] Similarly, sustainability and stockholding could be addressed on the basis of considerations such as the fact that overseas supply would unlikely to be interrupted in situations of low-level conflict, and that advanced munitions would only be required in proportion to the limited number of appropriate targets in the region.[744] Since the strategy of defence in depth implied operations from domestic rather than foreign bases, the logistic system could be planned on the basis of the integration of civilian and military assets, and for the likely workloads that maritime conflict in the Northern approaches and counter-raid operations on land would generate.[745]

In general, the focus of Australia's military effort shifted from the traditional basing areas in the South East to the likely area of operations in the North. Up-to-date charts and maps of that region were required, and a significant acceleration of the mapping and charting activities of the Department of Defence was one outcome of the White Paper.[746] The 2nd Cavalry Regiment moved to Darwin in order to gain experience with

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[740] In addition, the 1987 White Paper explicitly mentions air refuelling and modern conventional air-delivered munitions, (Department of Defence, *The Defence of Australia*, pp. 49-50.) and the Dibb Review intelligence collection and analytical capacities, electronic warfare, sea-mining, naval air defence, naval command and control, strike capabilities in general and strike aircraft and submarines in particular, armoured vehicles and skills for armoured operations, 155mm artillery, and airborne ground attack skills as justified partly or fully through their role as part of the expansion base. (Dibb, *Review of Australia's Defence Capabilities*, pp. 61, 63, 70, 72, 66-67, 87, 121, 136-137, 142.)

[741] The Dibb Review did, however, mention that discharged servicemen could provide a rapid manpower expansion, and that materiel and weapons systems could be drawn from overseas sources as well as old ADF inventories. Ibid., pp. 95, 157.

[742] It is, of course, important to distinguish the confidence that could be placed in this part of the definition of requirements from the confidence that could be placed in the 'upstream' judgement that the ADF was preparing for the right risk—but that was a question of political guidance, not of the development of force structure.

[743] Dibb, *Review of Australia's Defence Capabilities*, p. 56.

[744] Ibid., pp. 97, 146. For a critique of the department's efforts to link readiness and sustainability to strategic guidance, see Tony Minchin, Peter Robinson and Tina Long, 'Management of Australian Defence Force preparedness,' *Audit Report*, no. 17 (Canberra: Australian National Audit Office, 1996).

[745] Dibb, *Review of Australia's Defence Capabilities*, pp. 82, 95, 103-105, 154-155; Department of Defence, *The Defence of Australia*, pp. 65, 68.

[746] Department of Defence, *The Defence of Australia*, p. 40; Dibb, *Review of Australia's Defence Capabilities*, pp. 43, 63, 119.

operations in the particular environmental conditions of the North,[747] and was followed by 1st Brigade in later years. In order to facilitate Navy operations around the continent, HMAS Stirling in Perth was expanded into a second major fleet base and patrol boat facilities in Port Hedland expanded. Another bare base airfield on Cape York Peninsula completed the chain of RAAF bases between Learmonth and the East Coast. Finally, in order to command joint operations, Northern Command (NORCOM) was established as a standing joint force headquarters in Darwin.[748]

In terms of force structure consequences of low-level conflict that flow from the strategy of defence in depth, the White Paper states that

> priority capability areas include:
>
> - surveillance and patrol operations in our maritime resources zone and proximate ocean areas;
> - maritime forces (including mine countermeasures forces) able to protect shipping in coastal waters and in our focal areas and ports;
> - ground reconnaissance and surveillance forces;
> - mobile ground forces able to defeat hostile incursions at remote localities and protect military and infrastructure assets that support the projection of our maritime power[;]
> - air defence within our maritime areas and northern approaches;
> - maritime and land interdiction and strike capabilities, particularly the ability to undertake maritime strike operations in the approaches to north and north-west Australia;
> - a capability to sustain operations in areas of Australia and its territories remote from our industrial and logistic support centres; and
> - command, control and communications systems commensurate with these tasks.[749]

With regard to the naval patrol forces required to challenge surface ships in northern waters, the Dibb Review wrote that

> a significant presence of surface patrol assets might be required at the following five offshore focal areas: Dampier, Timor Sea, Arafura Sea and Torres Strait, Christmas Island, and the Indian Ocean approaches. A surface vessel presence could be sustained with two or three vessels in each area. . . . Taking account of the need for periodic

[747] These included changed service procedures for engines, problems with operating overseas-designed tanks as well as acclimatised soldiers. Auditor General, 'Army Presence in the North,' *Audit Report*, no. 27 (Canberra: National Audit Office, 1997).

[748] Department of Defence, *The Defence of Australia*, pp. 48, 51, 53, 66.

[749] Ibid., pp. 32-33.

> maintenance, transit time from northern ports and some reserve capacity, a need is seen for between about 16 and 24 vessels.[750]

Of these, eight or nine would be destroyer-class vessels capable of high-intensity conflict, while the remainder would consist both of patrol boats and a new 'Light Patrol Frigate.' This new class would have better sea-keeping capabilities and endurance than the former and be capable of operating helicopters, but not require the extensive combat systems of full destroyers, as it would only face the relatively lightly armed vessels available to potential enemies.[751] Since surface vessels in low and escalated low-level conflict would patrol within the range of land-based fighters, and Australia would be unlikely to expose major units to a threat from the air in high-level conflict, the Dibb Review saw only a very circumscribed requirement for naval air defence.[752] With regards to mine-clearing capabilities, the Review concluded a priority need for a capability to clear three areas (on the West, North and East Coasts; or the North West ports, Darwin Harbour and the Torres Straits) simultaneously, as sea mines are a means for the enemy to cause disproportionate effect with relatively unsophisticated means.[753] Amphibious forces, however, did not have a role in the strategy of defence in depth and were consequently to be run down.[754]

With regards to surveillance, the focus on the north of the continent as the likely area of operations led to a requirement for 12 operational Long-Range Maritime Patrol (LRMP) aircraft to cover three northern sea areas.[755] Given the size of the airspace to be covered, OTHR was needed to monitor the approaches to Australia. On the basis of the limited number of worthwhile targets in Northern Australia, and the restricted regional air combat capabilities, the Review only identified a requirement for a selective capability to intercept hostile aircraft in low-level conflict.[756] This translated into a need for two squadrons for continental defence, with three being judged sufficient for both continental and maritime air defence in the Learmonth/Derby, Darwin/Tindal and Cape York areas.[757]

Emphasizing the role of net assessment in force structuring, the White Paper writes that

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[750] Dibb, *Review of Australia's Defence Capabilities*, p. 71.

[751] Ibid., pp. 72, 129-130; Department of Defence, *The Defence of Australia*, p. 44.

[752] Dibb, *Review of Australia's Defence Capabilities*, p. 70.

[753] Ibid., pp. 69-70, 126; Department of Defence, *The Defence of Australia*, p. 45.

[754] Dibb, *Review of Australia's Defence Capabilities*, pp. 104, 145.

[755] Ibid., pp. 62-63, 118; Department of Defence, *The Defence of Australia*, p. 37.

[756] Dibb, *Review of Australia's Defence Capabilities*, pp. 74-75.

[757] Ibid., pp. 75-76; 132-133. In addition, there was a need for the creation of a national integrated air defence system, as well as for a microwave area surveillance capability to direct intercepts (Ibid., pp. 76, 132; Department of Defence, *The Defence of Australia*, p. 36). The need to staff the bare bases in the North also provided a framework for RAAF personnel sizes and roles. Alan Stephens, *The Australian Centenary History of Defence, Vol. II: The Royal Australian Air Force* (Oxford: Oxford University Press, 2001), p. 303.

> Specific implications for ground force development follow from the constraints the sea and air gap imposes on the range and type of ground forces that an opponent could land and sustain against Australia.[758]

The Dibb Review thus developed a scenario of how a campaign to counter raids might unfold, beginning with the use of the regular Army to guard important military assets in the North, especially in the Darwin/Tindal area and a number of airfields and communications installations elsewhere:[759]

> Protection of the vital Darwin/Tindal area would require at least a three-battalion brigade group, while Learmonth, Derby and Cape York airfields would each require a battalion group. Thus there is a priority need for some six battalions in the Regular Army.[760]

After the Regular army had assured the ability of the ADF air and naval forces to operate from Northern bases, the Review then saw it being progressively freed up by the Reserves to undertake more offensive counter-raid operations.[761] Consistent with the overall shift from *Rearmament Planning* to *Threat-based Planning*, the role of the Reserves thus changed from being part of the expansion base to the 'total force' integration with the Regular Army that the Millar committee had recommended thirteen years earlier.[762] In this framework, the size of the Army reserve was thus directly related to the installations and settlements that the Government would wish to protect, and not to the size of a future force any more. The Review also recommended that reserve units already in peacetime be allocated their wartime roles.[763] Accordingly, the White Paper announced legislation to enable a more flexible call-out of Reserves, and

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[758] Department of Defence, *The Defence of Australia*, p. 27.

[759] Dibb, *Review of Australia's Defence Capabilities*, pp. 79-80, 83-85.

[760] Ibid., p. 85.

[761] For a further analysis of Army force structure suited to this task, see Stewart Woodman and David Horner, 'Land Forces in the Defence of Australia,' in 'Reshaping the Australian Army: Challenges for the 1990s,' *Canberra Paper*, no. 77, ed. David Horner (Canberra: Strategic and Defence Studies Centre, Australian National University, 1991), pp. 71-140.

[762] Dayton McCarthy, *The Once and Future Army: A History of the Citizen Military Forces, 1947-1974* (Oxford: Oxford University Press, 2003), pp. 169-196; Dibb, *Review of Australia's Defence Capabilities*, pp. 153-154. Although the changes recommended to the role of the reserve were most prominent in the case of the Army, similar recommendations were made in the Review in the case of navy reserve ship crews and Air Force aircrews. Dibb, *Review of Australia's Defence Capabilities*, pp. 127, 152, 155. In later years, the fact that the resulting total force was still small in comparison to the task before it—even in terms of the ratio of aircrews to available aircraft—led to repeated proposals to significantly expand the role of the Reserves. See, for example, Ross Babbage, 'More Troops for Our Taxes? Examining Defence Personnel Options for Australia,' *Working Paper*, no. 194 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1989); Alan K. Wrigley, *The Defence Force and the Community* (Canberra: Australian Government Publishing Service, 1990); Charles Heller, 'The Australian Defence Force and the Total Force Policy,' *Working Paper,* no. 249 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1992); John Coates and Hugh Smith, *Review of the Ready Reserve Scheme* (Canberra: UNSW, 1995); Joint Committee on Foreign Affairs, Defence and Trade, *The Australian Defence Force Reserves* (Canberra: Australian Government Publishing Service, 1991).

[763] Dibb, *Review of Australia's Defence Capabilities*, pp. 80, 85-86, 154; Department of Defence, *The Defence of Australia*, p. 55.

closer integration of Regulars and Reserves both in the 1st Division and Logistic Support Force.[764]

The counter-raid role of the Army also had important implications for doctrine, organisation and equipment. In many respects there was a knowledge deficit regarding operations in the North that had to be addressed over time through experience from basing and training in that region.[765] In general, however, the size and capabilities of enemy forces likely to be encountered, and the expanse of the area to be defended, meant that a capability to fight dispersed, over long distances and in austere conditions had a clear priority over more conventional operations.[766] Mechanisation plans were thus restricted,[767] mobility was at a premium over heavy protection and firepower,[768] and a second helicopter company troop lift was acquired.[769]

The use of regional capabilities as benchmarks for enemy capabilities also had important consequences for the definition of requirements that had to be fulfilled by major weapons platforms. Rather than at least striving for the state of the art in all areas, as was implicit policy in previous years, the sophistication of ADF capabilities that was required to hedge the risk of low-level conflict could now be determined more precisely, and was often of a lesser than NATO standard.[770] It was of course only possible to do so for the limited time that enemy capabilities could be confidently predicted into the future, and not for the whole in-service life of major platforms. A major outcome of the 1987 White Paper in this regard was, therefore, the 'fit-for-not-with' policy. Both that document and the Dibb Review apply these considerations (explicitly) to the Light Patrol Frigate,[771] as well as (implicitly) to electronic warfare capabilities.[772]

As mentioned above, the 1976 White Paper had placed a smaller emphasis on expansion capabilities in its defence industry than suggested by the theory in this thesis, mainly due to the relatively restricted size of its industrial base. The 1987 White Paper's recommendations in this regard were therefore a shift in emphasis rather than a break with previous practice, but they are consistent with the role of industry in a force

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[764] Department of Defence, *The Defence of Australia*, pp. 59-60.

[765] See, for example, Dibb, *Review of Australia's Defence Capabilities*, pp. 89, 102, 106, 141. See also Desmond O'Connor, 'Problems of Research and Development Relating to the Defence of Northern Australia,' *Working Paper*, no. 43 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1981).

[766] Department of Defence, *The Defence of Australia*, p. 53.

[767] Ibid., p. 59. See also Dibb, *Review of Australia's Defence Capabilities*, pp. 136-139.

[768] Dibb, *Review of Australia's Defence Capabilities*, p. 86.

[769] Department of Defence, *The Defence of Australia*, p. 57.

[770] A point explicitly made in Dibb, *Review of Australia's Defence Capabilities*, p. 57.

[771] Department of Defence, *The Defence of Australia*, p. 44; Dibb, *Review of Australia's Defence Capabilities*, pp. 68, 129-130. See also Denis McLean and Desmond Ball, 'The ANZAC Ships,' *Working Paper,* no. 184 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1989), pp. 7-11; Department of Defence, *Force Structure Review* (Canberra: Commonwealth of Australia, 1991), p. 20.

[772] Department of Defence, *The Defence of Australia*, pp. 39-40; Dibb, *Review of Australia's Defence Capabilities*, p. 63..

structure designed as a hedge of the present risk of low-level conflict: There would not be a priority of substituting for overseas supplies, a capability to expand the force on the basis of domestic supply, or the replacement of large-scale combat losses. Instead, the main role for industry was to support ADF operations in terms of maintenance and repair of equipment, and the adaptation of overseas systems to the particular operating conditions of Australia's North. Although the Dibb Review mentions the preservation of core high-tech industrial capabilities as an option for expansion, the priority in terms of local production lay in those areas where industry could competitively deliver less complex platforms and systems.[773]

In summary, the risk pattern in the 1987 White Paper was close to a *Clear and Present Danger* of low and escalated low-level conflict with Indonesia, a risk that was however abductively inferred. Future risk was accorded second priority. Force structure relevance was explicitly limited to those parts of the theory of victory that reduced that risk directly and in a very specific way. Requirements flowed from the application of net assessment to known regional capabilities, within the peculiar abductive framework established by the overall risk pattern. The resulting force structure was a hedge against low and escalated low-level conflict on Australian soil, although some elements of an expansion base were maintained. The role of industry was primarily to support operations in the North, and the technical specifications of platforms could be precisely linked to the 'threat' of regional capabilities. In its own peculiar way, the 1987 White Paper thus shows all defining features of *Threat-based Planning*.

[773] Department of Defence, *The Defence of Australia*, pp. 69-70, 76-78, 84, 87, 89; Paul Dibb, *Review of Australia's Defence Capabilities*, pp. 45, 107-113. See also the officially endorsed Ken Anderson and Paul Dibb, 'Strategic Guidelines for Enabling Research and Development to Support Australian Defence,' *Canberra Paper*, no. 115 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1996).

CHAPTER 8:

MULTI-THREAT PLANNING

Multi-Threat Planning is the appropriate framework for dealing with a multitude of known and understood risks. As the risk pattern is one close to (usually geographic) overstretch, a country's defence force must be able to divide and organize itself in several shapes to deal with whichever risk materializes. The two case studies in this chapter are complementary in the sense that the *BUR* primarily illustrates the consequences that flow from this for the determination of the overall force size. The conceptual core of the Australian Defence 2000 White Paper lies in the definition of multiple and different missions for parts of the overall force.

FIGURE 29: MULTI-THREAT PLANNING OVERVIEW

Risk Pattern	*Ideal Pattern*	'Gulliver'
	Number of threats	Many
	Enemy's theory of victory	Understood
	Risk at which time?	Short and long-term
Theory of Victory	*Specificity / Level of Detail*	Specific to classes of risk
	Risk Treatment Approach	Management of types of threat ('agent')
Codification and Requirements	*Main Inference*	Deduction / Net Assessment
	Reduced by	Induction / Expectations regarding concurrency
	Defined through	Categorization and judgment regarding concurrency
	Concentrated at which time?	Short and long-term
Force Structure	*Characteristic sought*	Portfolio
	Platforms	Modular or Multi-Role
	Technical specifications	Precise and must be fulfilled
	Development and procurement approach	Grand-design with surge production

8.1 United States—The 1993 *Bottom-Up Review*

The *BUR* was authored by the first administration that began its time in office in the post-Cold War world, and the document makes it clear that an era has ended:

> The threat that drove our defense decisionmaking for four and a half decades—that determined our strategy and tactics, our doctrine, the size and shape of our forces, the design of our weapons, and the size of our defense budgets—is gone.[774]

[774] Les Aspin, *Report on the Bottom-Up Review* (Washington DC: Department of Defense, 1993), p. 1.

In re-orienting US defence policy after victory over global communism, the Review had to grapple with concurrency issues that make it a good example of *Multi-Threat Planning*[775]—even if its implementation proved to be severely underfunded.[776]

8.1.1 Risk Pattern

According to the *BUR*,

> the most basic goals of the United States ... are to:
>
> - Protect the lives and personal safety of Americans, both at home and abroad.
> - Maintain the political freedom and independence of the United States with its values, institutions, and territory intact.
> - Provide for the well-being and prosperity of the nation and its people.[777]

But it acknowledges that "the threat of a massive nuclear attack on the United States is lower than at any time in many years,"[778] and that "dramatic changes ... have occurred in the world".[779] Overall, the discussion of strategic risks in the *BUR* was dominated by the need to come to terms with these changes, and to determine what would replace the threat that the United States had become accustomed to during the previous decades. One might say that the Soviet Union still dominated the *BUR* through the void that it had left in US defence planning frameworks.

The Review did not try to develop a coherent conception of the new world order. Rather, it concentrated on broad categories of new threats that span operational, geostrategic as well as economic domains:

- ***Dangers posed by nuclear weapons and other weapons of mass destruction ...***
- ***Regional dangers***, posed primarily by the threat of large scale aggression by major regional powers with interests antithetical to our own, but also by the potential for smaller, often internal, conflicts based on ethnic or religious animosities, state-sponsored terrorism, or subversion of friendly governments.
- ***Dangers to democracy and reform***[780]

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[775] Secretary of Defense Les Aspin said before taking office that his ideas, on which the *BUR* was based, would help to develop a "threat-driven" response to "generic real world threats". Robert P. Haffa, 'A "New Look" at the Bottom-Up Review: Planning U.S. General Purpose Forces for a New Century,' *Strategic Review*, vol. 24, no. 1 (Winter 1996), p. 22.

[776] See the good discussion in Eric V. Larson, David T. Orletsky, and Kristin J. Leuschner, *Defense Planning in Decade of Change: Lessons from the Base Force, Bottom-Up Review, and Quadrennial Defense Review* (Santa Monica: RAND, 2001), pp. 41-81.

[777] Aspin, *Report on the Bottom-Up Review*, p. 2-3.

[778] Ibid., p. 25.

[779] Ibid., p. iii.

[780] Ibid., p. 2. The review also mentions economic dangers from failing to develop a growing economy, but as these do not relate to strategic risk or indeed defence planning per se, they are not further discussed here.

The latter were most evident in the former communist countries and, in particular, the former Soviet Union. The *BUR* remarks that "[e]ven under START II [Strategic Arms Reduction Treaty], Russia will retain a sizable residual nuclear arsenal,"[781] and notes the continued sophistication of conventional armaments produced and fielded there.[782] A reversal of recent trends towards democracy and liberal institutions there thus "could have a profound impact on U.S. security and on U.S. defense requirements."[783] But to a large extent, these dangers also manifest themselves in the form of opportunity costs should the community of democracies not be enlarged. The *BUR*, for example, sees opportunities from a continued spread of democracy, market economies and rule of law to "[p]romote new regional security arrangements" as well as to "[p]rotect and advance our security interests with fewer resources".[784]

After the 'end of history'[785] in the form of global ideological confrontations, and in the absence of a great power threat—remarkably, the *BUR* does not mention the emergence of possible peer-competitors at all—regional dangers in various forms dominate the military threat spectrum. The Review states that

> Regional dangers include a host of threats: large-scale aggression; smaller conflicts; internal strife caused by ethnic, tribal, or religious animosities; state-sponsored terrorism; subversion of friendly governments; insurgencies; and drug trafficking.[786]

Each of the regional dangers "jeopardizes, to varying degrees, interests important to the United States."[787] However, "[c]hief among the new dangers is that of aggression by regional powers,"[788] particularly by "rogue leaders set on regional domination through military aggression while simultaneously pursuing nuclear, biological, and chemical weapons capabilities."[789] The *BUR* explicitly mentions North Korea, Iran and Iraq in this context.[790] "Regional aggressors represent a danger that must be deterred and, if

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[781] Ibid., p. 25.

[782] For example, with regards to submarines, combat aircraft, air defences and helicopters: Ibid., pp. 36, 39, 56.

[783] Ibid., p. 74.

[784] Ibid., p. 2.

[785] Francis Fukuyama, 'The End of History?,' *The National Interest*, no. 16 (Summer 1989), pp. 3-18.

[786] Aspin, *Report on the Bottom-Up Review*, p. 6.

[787] Ibdi.

[788] Ibid., p. iii.

[789] Ibid., p. 1. Given long-term trends such as the rise of Islamic fundamentalism, the youth bulge in many countries of the Middle East and developing world, and growing urbanisation, a good case can be made that this assumption was not questioned sufficiently, especially further into the 1990s. Williamson Murray, 'Preparing to Lose the Next War?,' *Strategic Review*, vol. 26, no. 2 (Spring 1998), pp. 51-62. Given the uncertainty of what form threats caused by such trends would take, it is not surprising that proposals to deal with them generally are much closer to the Task-based Planning framework discussed in the next chapter. See, for example, Robert David Steele, 'Threats, Strategy, and Force Structure: An Alternative Paradigm for National Security in the 21st Century,' in *Revising the Two MTW Force Shaping Paradigm,* ed. Steven Metz (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2001), pp. 139-163.

[790] Aspin, *Report on the Bottom-Up Review*, p. 7. Efforts to refine the list of enemies, for example by proposing that the US plan for war against those states that combine military potential, hostile intentions and regions of U.S. interest, and take more limited preparations against all cases that combine two of the

necessary, defeated by the military capability of the United States and its allies."[791] The *BUR* expects this aggression to take the form of an invasion into the territory of a US ally,[792] a critical assumption further discussed below.

The danger of regional aggression is underpinned by rogue states' ability to tap a vibrant trade in advanced conventional armaments of Western as well as Russian production, notably fighter aircraft, air defense systems, and helicopters.[793] More importantly, it is superimposed with that of the proliferation of WMD, notably nuclear weapons. The *BUR* remarks that "[m]ore than 25 nations either have or attempting to acquire weapons of mass destruction,"[794] and that

> In most areas where U.S. forces could potentially be engaged on a large scale, such as Korea or the Persian Gulf, our likely adversaries already possess chemical and biological weapons. Moreover, many of these same states (e.g. North Korea, Iraq, and Iran) appear to be embarked upon determined efforts to acquire nuclear weapons.[795]

Regional enemies could use WMD against their neighbours, concentrations of US forces, regional sea- and airports as well as the continental United States itself,[796] and thereby "threaten not only U.S. lives but also the viability of our regional power projection strategy."[797] Part of this threat is based on the proliferation of short- and medium-range ballistic missiles that can be armed with non-conventional weapons. In addition, the review acknowledges that "the possibility of a limited ballistic missile threat [to the territory of the United States] from the Third World sometime in the first decade of the next century cannot be excluded."[798]

The post-Cold War environment at large not only adds gravity to WMD proliferation due to the higher risk of regional conflict involving the United States, it also directly facilitates WMD proliferation:

> First, alternative suppliers ... are emerging, with countries such as North Korea offering to sell technologies and missiles ... In addition, the indigenous capabilities of countries of concern are improving. There is also the new danger of nuclear,

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three, did not change the fact that the overall approach remained one of 'Multi-threat Planning,' in which the US could not meet all identified individual threats at once. David Ochmanek and Stephen T. Hosmer, 'The Context for Defense Planning: The Environment, Strategy, and Missions,' in *Strategic Appraisal 1997: Strategy and Defense Planning for the 21st Century,* eds. Zalmay M. Khalilzad and David Ochmanek (Santa Monica: RAND, 1997), pp. 51-55.

[791] Aspin, *Report on the Bottom-Up Review*, p. 7.

[792] Ibid., pp. 15-16.

[793] Ibid., pp. 36, 39.

[794] Ibid., p. 73.

[795] Ibid., p. 5.

[796] Ibid., p. 5.

[797] Ibid., p. 73.

[798] Ibid., p. 44. The *BUR* did not act on this threat, however, only funding a missile defence program that would allow to field a defence system for the continental United States 10 to 15 years after a decision to do so. (pp. 47-48)—a decision that had to do with domestic politics as much as it had to do with defence planning per se.

> biological, and chemical weapons, materials, equipment, and knowledge leaking from the former Soviet Union. Further, the challenges associated with controlling dual-use technologies have grown.[799]

In addition, economic, political and military dislocations in the former Soviet Union

> have increased the risk that nuclear weapons could be subject to accidental or unauthorized use, could form the basis for the emergence of new nuclear weapons states, or even could fall into the hands of terrorist groups.[800]

Overall, the *BUR* thus concludes the existence of two main types of strategic risk—failure of reform and democratisation, particularly in the former Soviet Union, and regional conflict.[801] Although encompassing a variety of issues, the latter category is dominated by the threat of regional aggression by countries such as Iraq, Iran or North Korea. Meeting the challenge from these (and possibly other) rogue states while at the same time dealing with lesser threats to regional security, such as ethnic conflict or state failure, was to be the main task of the US military in the post-Cold War world. The single threat of Communist aggression had been replaced by a multitude of smaller ones, and the overall risk pattern confronting the United States was thus one very similar to the ideal *Gulliver* type. Remarkably, with the exception of the risk of a resurgent Russia, all the threats discussed in the Review lay in the present.

8.1.2 Theory of Victory

The *BUR* remarks that

> As a hedge against possible reversals, we ... must ... retain the means to rebuild a larger force structure, should one be needed in the future to confront an emergent authoritarian and imperialistic Russia reasserting its full military potential.[802]

Current force structure, however—with the exception of strategic nuclear weapons—was not seen as directly relevant for addressing that risk. Consequently, the military strategy was tailored to meet primarily the new regional dangers identified in the *BUR*.

Although the military was thus to meet a significantly different threat than in the decades before, the Review did not change forward engagement as the overall geopolitical strategy:

> [T]he United States must pursue a strategy characterized by continued political, economic, and military engagement internationally. Such an approach helps to avoid the risks of global instability and imbalance that could accompany a precipitous U.S. withdrawal from security commitments. It also helps shape the international

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[799] Ibid., p. 73.

[800] Ibid., p. 71. However, the review also states that "Accidental or unauthorized launches of Chinese or former Soviet nuclear missiles are also considered unlikely." (pp. 43-44).

[801] As mentioned above, WMD are less a threat themselves than a qualitative condition of the two main types of risk.

[802] Aspin, *Report on the Bottom-Up Review*, p. 10.

> environment in ways needed to protect and advance U.S. objectives over the longer term, and to prevent threats to our interests from arising.[803]

Not all regions are equally important—the *BUR* explicitly gives "first priority to regions critical to our interests." However, this would still entail the United States to remain "the leading security partner in Europe, East Asia, the Near East, and Southwest Asia."[804] It would do so through a three-pronged military strategy,

> based on defeating aggressors in major regional conflicts, maintaining overseas presence to deter conflicts and provide regional stability, and conducting smaller-scale intervention operations, such as peace enforcement, peacekeeping, humanitarian assistance, and disaster relief.[805]

As during the Cold War, overseas basing is central to US strategy as it

> deters adventurism and coercion by potentially hostile states, reassures friends, enhances regional stability, and underwrites our larger strategy of international engagement, prevention, and partnership.[806]

In addition, basing provides access to logistical facilities that are critical for expeditionary operations, as well as rapid response capability through forces close to potential crisis areas. Permanent overseas basing is, however, concentrated in those regions "where the United States has important and enduring *interests* and wants to make clear that aggression will be met by a U.S. military response,"[807] leaving the Cold War emphasis on Europe and Northeast Asia, both arguably under lesser *threat* than before, largely intact.[808]

The *BUR* has a very clear idea of how US forces would operate under peacetime conditions:

> we will conduct routine overseas presence operations. Moreover, the nature of the new regional dangers and our recent experience suggests that we will also need building blocks of lower-scale operations such as peacekeeping and peace enforcement, as well as humanitarian assistance and disaster relief activities. Beyond these types of operations, we will routinely hold large forces in "strategic reserve."[809]

Peace enforcement operations are thus seen as part of *peacetime* missions supporting international stability. While the Report writes that "[h]umanitarian operations can also

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[803] Ibid., p. 3. The *BUR* thus foreshadowed the strategy later laid out more explicitly in William J. Clinton, *A National Security Strategy of Engagement and Enlargement* (Washington DC: The White House, 1994).

[804] Aspin, *Report on the Bottom-Up Review*, p. 3.

[805] Ibid., p. 7.

[806] Ibid., p. 8.

[807] Emphasis added. Ibid., p. 8.

[808] This point highlights the severe deficit in the political science and strategic literature regarding the role and function of overseas basing, especially in the post-Cold War era. One exception being Robert E. Harkavy, 'Thinking about Basing,' *Naval War College Review,* vol. 58, no. 3 (Summer 2005), pp. 12-42.

[809] Aspin, *Report on the Bottom-Up Review*, p. 27.

prove an effective means of addressing potential sources of regional instability before they lead to armed conflict,"[810] it was finished only weeks before 18 American soldiers were killed in the battle of Mogadishu, significantly dampening any enthusiasm for these kinds of operation.

Should a Major Regional Conflict (MRC)[811] occur, overseas presence forces as well as reinforcements from the United States would move to the theatre to defeat the enemy.[812] Although the Review remarks that "we must avoid preparing for past wars,"[813] the way the US military is expected to go about fighting the MRC bears an uncanny resemblance to the first Gulf War:

> **Phase 1: Halt the invasion.** The highest priority in defending against a large-scale attack will most often be to minimize the territory and critical facilities that an invader can capture. ... In the event of a short-warning attack, more U.S. forces would need to deploy rapidly to the theater and enter the battle as quickly as possible.
>
> **Phase 2: Build up U.S. combat power in the theater while reducing the enemy's.** Once an enemy attack had been stopped and the front stabilized, U.S. and allied efforts would focus on continuing to build up combat forces and logistics support in the theater while reducing the enemy's capacity to fight. ...
>
> **Phase 3: Decisively defeat the enemy.** In the third phase, U.S. and allied forces would seek to mount a large-scale, air-land counteroffensive to defeat the enemy decisively by attacking his centers of gravity ...
>
> **Phase 4: Provide for post-war stability.** Although a majority of U.S. and coalition forces would begin returning to their home bases, some forces might be called upon to remain in the theater ...[814]

As discussed above, regional dangers are overlaid by a continued proliferation of WMD. The *BUR* proposes a three-pronged strategy to deal with this development based on non-proliferation efforts,[815] cooperative threat reduction in the former Soviet Union, [816] and counterproliferation. The latter firstly encompasses deterrence—however, in one of the few remarks that show any uncertainty in the US theory of victory, the Report remarks that

> the unpredictable nature of some Third World regimes, coupled with the fact that potential adversaries may have more at stake in a regional conflict than the United

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[810] Ibid., p. 75.

[811] From the 1997 *QDR* on, the term Major Theater War (MTW) was used instead of MRC.

[812] Aspin, *Report on the Bottom-Up Review*, p. 28.

[813] Ibid., p. 14.

[814] Ibid., pp. 15-16.

[815] In fact, the Review shows a remarkable confidence in the success of non-proliferation, writing that "With international cooperation to strengthen and expand existing agreements, it should be possible to slow, if not halt, further proliferation; reduce the size and aggregate destructive power of nuclear, chemical, and biological arsenals; and deter or prevent the actual use of these weapons." Ibid., p. 5.

[816] Ibid., pp. 71-73.

> States, means that the United States' ability to deter such actions [of WMD use] may at best be uncertain.[817]

Under the heading of counterproliferation, efforts to strengthen deterrence are therefore complemented by measures to incorporate enemy WMD in tactical and operational planning, and to improve capabilities related to intelligence, the ability of US forces to seize, disable and destroy WMD, passive defences, and the general capability to fight on a non-conventional battlefield.[818]

The *BUR* does acknowledge in passing that a "revolution in weapons technology" was taking place, which "suggests that we must reexamine our concepts for employing certain weapons."[819] And although the Review acknowledges that militarily relevant technology heavily relies on areas where civilian industries are making the most significant advances, it did not see this revolution as a source of uncertainty regarding the operational and technological parts of the theory of victory, stating that it

> took into account the potential contributions of enhanced support systems (such as surveillance and communication assets), advanced munitions, and new major systems, seeking to identify those that could provide the greatest "value added" under a constrained budget.[820]

Overall, the theory of victory proposed in the *BUR* to meet the new post-Cold War dangers is thus a relatively straightforward one. The likelihood of a resurgent hostile Russia was to be reduced by political engagement, and the risk from such a development addressed by preparations for a renewed build-up of US force structure. The severity of any single regional risk paled in comparison to the Soviet threat, and confidence in the US military's capability in principle to fight and win against any single regional adversary was high. The main task in terms of developing the theory of victory was thus to integrate this capability with the larger strategy of enlarging the community of democratic nations—an undertaking that was not too difficult as it was aimed at having strategic effect on (unstable) friends rather than strong enemies. From the geostrategic to the operational and technological level, the *BUR* could thus show a remarkable confidence in the theory of victory it outlined.[821]

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[817] Ibid., p. 73.

[818] Ibid., pp. 6, 73.

[819] Ibid., p. 33.

[820] Ibid., p. 33. The Review writes, for example, that "theater air forces will undoubtedly play an even greater role in any future conflict in which the United States is engaged" (p. 35), although they depend on relatively vulnerable bases close to the theatre, unlike the heavy bombers that recently took up some of the close air support duties in Afghanistan and Iraq.

[821] Unsurprisingly, however, given its relatively small ambition, the Review came under strong criticism for not providing a more coherent grand strategy or doctrine to replace containment after the Cold War. See, for example, Malcom Wallop, 'American Defense Planning Gone Astray,' in *Security and Insecurity: A Critique of Clinton Policy at Mid-Term*, eds. Jeane Kirkpatrick and Jacqueline Tillman (Washington D.C.: Empower America, 1994), pp. 95-97. This may be partly due to the fact that the Joint Chiefs were developing force structure concepts in parallel, rather than with, the strategy part developed by civilians in the office of the secretary. Sharon K. Weiner, 'The Politics of Resource Allocation in the Post-Cold War Pentagon,' *Security Studies*, vol. 5, no. 4 (Summer 1996), p. 135.

8.1.3 Codification of Requirements and the Two MRC Standard

The *BUR* considered requirements for three main types of operation—MRCs, peace enforcement, and overseas presence missions.[822] Lesser contingencies such as peacekeeping, humanitarian assistance or drug interdiction were not considered major determinants of general purpose force structure.[823] The Review then defined 'building blocks' believed to be sufficient to deal with one MRC or peace enforcement operation, respectively. In doing so, the Review applies what may be called agent or enemy management strategies, instead of the direct treatment of strategic risk used during the Cold War: Requirements are not based on the net assessment of individual enemies, but (ostensibly) on scenarios representative of classes of adversaries that, because they pose a threat of similar nature, would require a similar response.[824]

The representative enemy in a MRC was assumed to field

- 400,000-750,000 total personnel under arms
- 2,000-4,000 tanks
- 3,000-5,000 armored fighting vehicles
- 2,000-3,000 artillery pieces
- 500-1,000 combat aircraft
- 100-200 naval vessels, primarily patrol craft armed with surface-to-surface missiles, and up to 50 submarines
- 100-1,000 Scud-class ballistic missiles, some possibly with nuclear, chemical, or biological warheads.[825]

US force structures under consideration were tested in net-assessment type scenarios against this notional enemy, taking account of

> critical parameters, including warning time, the threat, terrain, weather, duration of hostilities, and combat intensity. Overall, these scenarios were representative of likely ranges of these parameters.[826]

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[822] Deterrence of WMD attacks was a fourth criterion for the adequacy of force structure, but as the evaluation of nuclear forces was not part of the *BUR*, it did not receive much attention in the document. Aspin, *Report on the Bottom-Up Review*, pp. 13, 26.

[823] Ibid., p. 13.

[824] Before becoming Secretary of Defense, Les Aspin spoke of 'Desert Storm equivalents' around which the new US force structure should be organized. See the discussion of Aspin's views in John T. Correll, 'The Legacy of the Bottom-Up Review,' *Air Force Magazine*, vol. 86, no. 10 (October 2003), esp. pp. 54-56.

[825] Aspin, *Report on the Bottom-Up Review*, p. 13. These numbers fall roughly in between those given for North Korea on the one hand, and Iran and Iraq on the other hand in International Institute for Strategic Studies, *The Military Balance 1993–1994* (London: Brassey's, 1993), pp. 115-117, 159-161. The exception are ballistic missiles, which the *BUR* expects to be available to the enemy in significantly larger numbers than was the case at the time.

However, while enemy force structure, and arguably even the enemy's strategy, could be postulated without reference to a particular geographical setting, this was not the case for factors such as terrain, climate, or distances and facilities relating to strategic lift. Therefore, the Review "selected two illustrative scenarios that are both plausible and posit demands characteristic of those that could be posed by conflicts with other potential adversaries", namely "aggression by a remilitarized Iraq against Kuwait and Saudi Arabia, and by North Korea against the Republic of Korea".[827] Although both countries were openly hostile to the United States at the time, the *BUR* points out that "[n]either of these scenarios should be regarded as a prediction of future conflicts."[828] And indeed, although North Korea was the only rogue state in Northeast Asia, Iraq lay in a region that included a number of other, similar-sized states whose future friendly relationship with the United States could not be taken for granted—for example, Iran, Syria, Saudi-Arabia or Egypt.[829]

Both scenarios assumed

> an armor-heavy, combined-arms offensive against the outnumbered forces of a neighboring state. U.S. forces, most of which were not presumed to be present in the region when hostilities commenced, had to deploy to the region quickly, supplement indigenous forces, halt the invasion, and defeat the aggressor.[830]

No variability in terms of the enemy's theory of victory was thus taken into account—the scenarios assumed that future US adversaries would follow the same basic operational strategy as Iraq did during the Gulf War.

Unfortunately, the *BUR* does not discuss the logical basis for this assumption. However, the use of representative scenarios should rule out pure deduction on the basis of available information about, for example, North Korean contingency plans—the one possible enemy that arguably was most likely to follow such a course. Instead, deductive inference would have had to be based on information regarding all of the possible potential enemies—which was unlikely to be available, given that some of them were still governed by friendly, albeit unstable regimes.[831] Inductive reasoning on the basis of past experience—notably the Gulf War—ignored not only the fact that the sample size was de-facto limited to one, but also that past behaviour was unlikely to be

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[826] Aspin, *Report on the Bottom-Up Review*, p. 15.

[827] Ibid., p. 14. Although North Korea was the only rogue state in Northeast Asia, Iraq indeed lay in a region that included a number of other, similar-sized states whose future friendly relationship with the United States could not be taken for granted—for example, Iran, Syria, Saudi-Arabia or Egypt.

[828] Ibid., p. 15.

[829] Overall, the choice of both scenarios was thus plausible on the basis of likelihood as well as the fact that the analysis would have been based on the detailed studies supporting contingency plans in US Central and Pacific command for conflict with either country.

[830] Aspin, *Report on the Bottom-Up Review*, p. 15.

[831] It also obviously did not make sense for Iran, which did not border any weak US allies that it could invade (an invasion of NATO member Turkey was obviously an altogether different scenario). On the other hand, the *BUR* somewhat surprisingly ignored the experience of the tanker war with Iran, which had ended only five years previously and posed altogether different problems than an armed invasion.

a guide for the future in a strategic context.[832] This leaves abduction, which at a broad level would have meant assuming a future US defeat and considering those possible explanations that could not be excluded on the basis of deductively available information. At a minimum, such considerations should have led to the inclusion of enemy theories of victory based on attrition, aimed at wearing out American national will, in addition to those based on (strategic) manoeuvre or outright breaking of American resolve.

After defining the scenario adversaries, the *BUR* develops the US theory of victory in more detail. For each of the four phases, it lists tasks that would need to be performed against enemy opposition, such as the establishment of air and maritime superiority in the first phase; breaching of minefields, amphibious invasions and offensive urban warfare in the third phase. In addition, the Review discusses supporting capabilities—air- and sealift, prepositioning, battlefield surveillance, command, control and communications, advanced munitions or airborne tankers—that would be required throughout the campaign.[833] US force structures could thus be evaluated in a net-assessment framework as to their ability to achieve these tasks against a North Korean or (future) Iraqi enemy at politically acceptable cost. However, somewhat surprisingly given the disparate geography of the Middle Eastern and the East Asian scenarios,[834] the *BUR* concluded that the following, same 'Building Block' was required to fight and win one MRC:[835]

- 4-5 Army divisions
- 4-5 Marine Expeditionary Brigades
- 10 Air Force fighter wings
- 100 Air Force heavy bombers
- 4-5 Navy aircraft carrier battle groups
- Special operations forces[836]

The *BUR* applies the same methodology to peace enforcement operations, except that it does not identify specific enemies as scenario adversaries. Instead, it seems to argue directly from an assessment of notional enemy forces, writing that

> The types, numbers, and sophistication of weapons in the hands of potential adversaries in such operations can vary widely. For planning purposes, we assume that the threat

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[832] And the fact that experience in US confrontations with rogue states was not that clear cut, given the Tanker War with Iran and confrontation with Libya during the 1980s.

[833] Aspin, *Report on the Bottom-Up Review*, pp. 16-18.

[834] Robert P. Haffa, 'Planning U.S. Forces to Fight Two Wars: Right Number, Wrong Forces,' *Strategic Review*, vol. 27, no. 1 (Winter 1999), pp. 15-21.

[835] For an open source methodology on how such a building block can be assessed, see Paul K. Davis, Richard Hillestad, and Natalie Crawford, 'Capabilities for Major Regional Conflicts,' in *Strategic Appraisal 1997: Strategy and Defense Planning for the 21st Century,* eds. Zalmay M. Khalilzad and David Ochmanek (Santa Monica: RAND, 1997), pp. 141-178.

[836] Aspin, *Report on the Bottom-Up Review*, p. 19.

> we would face would include a mix of regular and irregular forces possessing mostly light weapons, supplemented by moderately sophisticated systems, such as antitank and antiship guided missiles, surface-to-air missiles, land and sea mines, T-54 and T-72-class tanks, armored personnel carriers, and towed artillery and mortars. Adversary forces might also possess a limited number of mostly older combat aircraft (e.g. MiG-21s, 23s), a few smaller surface ships (e.g., patrol craft), and perhaps a few submarines.[837]

The *BUR* outlines the theory of victory for peace enforcement operations in much less detail than that for a MRC. It is based on the use of US forces for the physical separation of combatants, and encompasses the following tasks:

- Forced entry into defended airfields, ports, and other facilities and seizing and holding these facilities.
- Controlling the movement of troops and supplies across borders and within the target country ...
- Establishing and defending zones in which civilians are protected from external attacks ...
- Preparing to turn over responsibility for security to peacekeeping units and/or a reconstituted administrative authority.[838]

The Review concludes that "[b]ecause these operations are so diverse, the forces and capabilities needed to conduct them will vary." However, it also assumes that the required forces would be "largely those maintained for other purposes—major regional conflicts and overseas presence."[839] It concludes that the following forces should be planned for a peace enforcement operation:

- 1 air assault or airborne division
- 1 light infantry division
- 1 mechanized infantry division
- 1 Marine Expeditionary Brigade
- 1-2 carrier battle groups
- 1-2 composite wings of Air Force aircraft
- Special operations forces
- Civil affairs units
- Airlift and sealift forces

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[837] Ibid., p. 22.

[838] Ibid., p. 22.

[839] Ibid., p. 9.

- Combat support and service support units
- 50,000 total combat and support personnel[840]

On the basis of these building blocks for MRCs and peace enforcement missions, the *BUR* sought to decide on, or justify, the overall force structure level:

> Determining the overall force structure needed to provide the building blocks ... rests on the key question: How many of each type of building block might need to be engaged at once?[841]

The Review's answer to this question consists of two main related judgements:

The first judgement was that US forces should be able to fight two MRCs concurrently, which had already been part of the Bush administration's Base Force.[842] Two reasons were advanced for this judgement: First, without such a capability the United States would run the risk that a second enemy would take advantage of the situation, if US forces were already engaged in another MRC elsewhere. Second, the capability to fight two wars at the same time provides strategic reserves should an adversary prove to be more difficult to defeat than anticipated.[843]

The department rejected as too risky in terms of operational outcome a strategy of fighting one MRC while holding in the second theatre, and then shifting forces to defeat the remaining adversary.[844] Therefore, the two-MRC standard meant that the MRC building block discussed above had to be doubled for the bulk of ground, naval, and air general purpose combat and combat support forces. Fiscal constraints, however, prevented this from being done with certain particularly expensive assets—an issue that will be addressed in the following section.[845]

The second judgement regarding the concurrency of operations was "that the United States would have to forgo the option of conducting sizable peace enforcement or

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[840] Ibid., pp. 22-23.

[841] Ibid., p. 27.

[842] The two MRC standard came under significant criticism in the latter half of the decade, without consensus developing however on how to best replace it. See Richard L. Kugler, 'Replacing the 2 MTW Standard: Can a Better Approach Be Found?,' in *Revising the Two MTW Force Shaping Paradigm,* ed. Metz, pp. 41-69, and the other chapters in that monograph; John F. Troxell, *Force Planning in an Era of Uncertainty: Two MRCs as a Force Sizing Framework* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 1997); Hart-Rudman Commission, *Seeking a National Strategy: A Concert for Preserving Security and Promoting Freedom,* Phase II Report (Washington D.C.: The United States Commission on National Security/21st Century, 2000), pp. 14-15.

[843] Aspin, *Report on the Bottom-Up Review*, pp. 7-8, 19. The Clinton administration had originally favoured a win-hold-win strategy of fighting two MRCs back-to-back, but the opted for the more ambitious goal of fighting both simultaneously after criticism from Congress, the press as well as allies. Larson, Orletsky, and Leuschner, *Defense Planning in Decade of Change: Lessons from the Base Force, Bottom-Up Review, and Quadrennial Defense Review*, pp. 48-50.

[844] Aspin, *Report on the Bottom-Up Review*, p. 29.

[845] In fact, the capability of the US military to implement the two MRC strategy rested on a whole range of favourable assumptions. See Government Accounting Office, *Bottom-Up Review: Analysis of DOD War Game to Test Key Assumptions,* GAO-NSIAD-96-170 (Washington D.C.: Government Accounting Office, 1996).

intervention operations at the same time it was fighting two MRCs,"[846] since units for lesser contingencies were to be drawn from the same pool of general purpose forces. The retention of a larger force structure that would have allowed to perform at least one such contingency concurrently with two MRCs was rejected on the basis of cost considerations.[847] However, even the *BUR* itself—admittedly in a different section than the one treating concurrency issues—admits that "once committed to peacekeeping operations, these forces will not be readily available to respond to crises elsewhere."[848]

Peacetime overseas presence requirements, the third general purpose force structure driver, could in general be accommodated within the forces required to fight two MRCs. One exception to this rule were aircraft carriers and amphibious ships. Together with the other ships that make up carrier battle and amphibious ready groups, they could be surged in wartime but required regular rotations for training, rest and refurbishment during routine operations. The *BUR* found that "a force of 10 carriers would be adequate to fight two nearly simultaneous MRCs",[849] while the United States had sought in the recent past to continuously deploy aircraft carrier battle and amphibious ready groups to Southwest Asia, Northeast Asia, and Europe.[850]

Therefore, the requirement for numbers of naval combatants was developed on the basis of warfighting as well as overseas presence considerations.[851] The relationship between carrier numbers and the gap in overseas presence in two of three regions (with permanent presence in the third) is relatively straightforward: A fleet of 15 carriers could maintain permanent presence in all three regions, a fleet of 12 carriers would cause two-month gaps per year in two of three regions, and a further reduction would increase these gaps by two months per eliminated carrier. Decisions on carrier numbers thus ultimately had to be based on a judgement regarding the importance of maintaining concurrent forward presence in the three critical regions. In the end, the Review settled on eleven active carriers, with one in reserve status but available for surges.[852] Resulting gaps were to be partly compensated for by naval groups centred on different vessels, such as large-deck amphibious ships or Aegis cruisers.[853]

The treatment of readiness in the *BUR* can best be understood with reference to the theoretical concepts of operational, structural and mobilization readiness. As discussed in Section 8.1.1, the risk pattern developed in the Review consisted of a multitude of present threats to be addressed by the US capability to fight two MRCs and conduct peace enforcement and peacekeeping operations, as well as the risk of a resurgent Russia in the future, which was to be dealt with by the capability to reconstitute a larger force structure. The *BUR* thus writes that "we must ***keep our forces ready to fight***", since MRCs and stabilization missions would involve "'come as you are' campaigns with little time to prepare our forces for the challenges they met", as had been the recent

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[846] Aspin, *Report on the Bottom-Up Review*, p. 23.

[847] Ibid., p. 30.

[848] Ibid., p. 87.

[849] Ibid., p. 51.

[850] Ibid., p. 25.

[851] Ibid., p. 24.

[852] Ibid., p. 49-54.

[853] Ibid., p. 25.

case in Panama, Iraq or Somalia.[854] When the Review thus writes, on the one hand, that "there must be no doubt that preserving readiness is the cornerstone of our new defense strategy",[855] it is referring to operational readiness in particular. When it, on the other hand, remarks that "[b]roadening the base of potential suppliers will ensure that the United States has the capability to gear up production again should that become necessary,"[856] or that it was important to preserve "those parts of the industrial base that are essential to our long-term defense needs and that would be difficult or costly to reconstitute once lost",[857] it is referring to mobilization readiness.

The risk pattern established in the *BUR* did not indicate that the conditions on which the two-MRC standard was based were expected to be only short term. However, considerations regarding structural readiness, or the maintenance of modern force structure in the medium term, is only discussed in passing in the *BUR*. The whole Review was, of course, an exercise in cutting back the inherited Cold War force structure even below the levels of the previous administration's Base Force. With the exception of a few selected new capabilities related to the counterproliferation initiative, new qualitative requirements are not defined. Modernization did not receive priority at the beginning of the 'procurement holiday' of the 1990s.[858] Given the inherited Cold War defence industry and the large US force structure compared with any regional adversary, the Review also does not include the emphasis on surge production capability that is part of the ideal concept of *Multi-Threat Planning*.

8.1.4 Force Structure Concept

In quantitative terms, the following force structure portfolio emerged from the *BUR*: 10 active and 5 reserve Army divisions; 11 active and one reserve aircraft carriers, 45-55 attack submarines and a total of 346 ships in the Navy; 3 Marine Expeditionary Forces (MEF) (as prescribed by law);[859] and 13 active and 7 reserve fighter wings as well as up to 184 heavy bombers in the Air Force.[860] Of these forces, about 100,000 troops were to be stationed in Europe, including two and one-third Air Force fighter wings, substantial parts of two Army divisions, and a Corps headquarters. Close to 100,000 troops were to remain in Northeast Asia as well, including a two-brigade division and one Air Force wing in South Korea, and one MEF, an Army Special Forces battalion,

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[854] Emphasis in original. Ibid., p. 11. The Review even goes so far as to say that it was required to "keep our forces ready to fight as a top priority in allocating scarce defense resources" (p. 12), and that "the first priority of the Clinton-Aspin defense plan is to ensure that the United States has forces ready to fight today and in the future." (p. 77). While it acknowledges the need to develop new metrics for readiness that align with the two-MRC concept, the *BUR* is silent on how these may be defined. (pp. 77-78).

[855] Ibid., p. 79.

[856] Ibid., p. 102.

[857] Ibid., p. 33.

[858] The Review's comment in the introduction to the section concerning weapons systems under development that "[o]f foremost concern was operational need", and that "[i]n the post-Cold War era, our weaponry and equipment must be able to deal with myriad potential threats and with weapon systems of various origins" (Ibid., p. 33) was thus not meant to suggest that US force structure would have to be modernized to the extent that it had been during the previous decade.

[859] U.S. Public Law 416, 28 June 28 1952.

[860] Aspin, *Report on the Bottom-Up Review*, p. 28.

one and one-half Air Force wings and Navy ships in mainland Japan and Okinawa.[861] The balance of the forces was to remain stationed in the United States and regularly rotate through overseas deployments.

But while the overall force structure was able to fight and win two MRCs simultaneously, it was not optimised to do so even in quantitative terms—individual MRCs were, after all, only one of the risks to be treated, and only a limited number of permutations of individual risk combinations involved two concurrent MRCs. Therefore, although the overall force level resulted from a doubling of the individual MRC force structure building block,

> certain specialized high-leverage units or unique assets might be "dual tasked," that is, used in both MRCs." For example, certain advanced aircraft—such as B-2s, F-117s, Stars, and EF-111s—that we have purchased in limited numbers because of their expense would probably need to shift from the first to second MRC.[862]

Ideally, the marginal dollar invested in such assets should have bought the same strategic effectiveness as the marginal dollar in any other capability—which would presume that they were, over all contingencies, less strategically effective per individual platform than other systems. In reality, the opposite is likely to be the case, and the fact that 'high-demand low-density' assets had to be shifted between MRCs was the consequence of a lack of funds for new acquisitions.[863] Throughout the 1990s, these systems proved to be a constant issue and main weakness of the *BUR* judgements.[864] Many overseas deployments, such as to Bosnia or the Gulf, did not require the large general purpose forces of an MRC, but nevertheless bound up a significant number of indivisible assets such as reconnaissance-battlefield management assets (E-3, E-8, U-2), electronic warfare aircraft (EA-6B and Compass Call), special operations forces, Patriot batteries, rescue aircraft, and chemical/biological defence units.[865] In addition, a second

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[861] Ibid., pp. 23-24.

[862] Ibid., p. 19. Indeed, already at the time the capability of the *BUR* force structure to fight two nearly simultaneous MRCs was in doubt. See, for example, Correll, 'The Legacy of the Bottom-Up Review,' pp. 54-59; Eliot A. Cohen, 'Beyond "Bottom-Up"', *National Review*, 15 November 1993; Andrew F. Krepinevich, 'Assessing the Bottom-Up Review,' *Joint Forces Quarterly,* no. 3 (Winter 1993/1994), pp. 22-24.

[863] Secretary Rumsfeld was later to comment that the term "high-demand low-density' was "a euphemism, in plain English, for 'our priorities were wrong and we didn't buy enough of the things we now find we need.'" Donald H. Rumsfeld, *21st Century Transformation of the U.S. Armed Forces,* 31 January 2002 <http://www.defenselink.mil/speeches/2002/s20020131-secdef2.html> (4 June 2002).

[864] For the purposes of the 1997 *QDR*, the use of these systems was studied in the *Dynamic Commitment* series of wargames and found to be at the limits, a result confirmed by the experience of the Kosovo War. Robert P. Haffa and James H. Patton, 'Wargames: Winning and Losing,' *Parameters*, vol. 31, no. 1 (Spring 2001), pp. 29-43. For background on the practical allocation of these assets, see Steven Kochman, *America's Silver Bullets: Allocating Low Density High Demand Assets* (Newport, RI: Naval War College, 1999).

[865] On high-demand low-density assets in general, see Robert P. Haffa and Barry D. Watts, 'Brittle Swords: Low-Density, High-Demand Assets,' *Strategic Review*, vol. 27, no. 4 (Fall 2000), pp. 42-48. During Operation Enduring Freedom, only one in four of 122 EA-8B Prowler aircraft was ready to fly, and the status of the fleet was briefed daily to the Chairman of the Joint Chiefs of Staff. David Brown, 'Wear and Tear on Aging Prowlers Taking a Toll,' *Navy Times*, vol. 51, no.11 (17 December 2001), p. 20; David Brown, 'Contaminated Oil Grounds One-Fifth of Prowler Fleet,' *Navy Times*, vol. 51, no.25 (25 March 2002), p. 12.

weakness of the *BUR*'s quantitative judgements was that it did not assess the strategic mobility requirements of shifting forces between two MRCs (or to extract peacekeeping forces if they were required for warfighting elsewhere).[866]

In qualitative terms, uncertainty about future contingencies varied in fairly well-defined ways in the two spectra of geography and nature of threat: MRCs were most likely to occur in Korea and the Middle East. Lesser contingencies were to be met wherever and to the extent that they infringed on US interests, which meant that the more challenging types of such operations were most likely to occur in Eastern Europe, or Central and Latin America.[867] The focus on counter-invasion and peace enforcement operations also provided sufficient guidance that could be used to develop one force structure that would perform adequately along the spectrum of relevant contingencies.

The portfolio character of the force thus also extended to qualitative considerations. On the one hand, the Review comments that a balanced force was chosen not on the basis of best performance in a particular scenario, but that

> while the analysis indicated that a force structure geared toward particular types of forces might enhance overall capabilities under very specific conditions, it would also create serious vulnerabilities under other circumstances. Given the great uncertainty as to where, when, and how future crises might occur, anything but a carefully balanced force will risk ineffectiveness, high casualties, or a failure to meet objectives.[868]

On the other hand,

> Our analysis showed that we can maintain a capability to fight and win two major regional conflicts and still make prudent reductions in our overall force structure—so long as we implement a series of critical force enhancements to improve our strategic mobility and strengthen our early-arriving antiarmor capability, and take other steps to ensure our ability to halt regional aggression quickly.[869]

The Army and Marine Corps had prepositioned equipment for reinforcements of the NATO Central and Northern fronts during the Cold War. These arrangements were kept in place, with sufficient equipment stored in Germany to augment the two Army divisions stationed there to three full strength divisions. In order to be prepared for contingencies in the Middle East and Korea, an Army brigade set was to be prepositioned in Kuwait, with the possibility of a second set on the Arabian Peninsula and additional equipment being prepositioned in South Korea to be studied.[870] Existing afloat prepositioning schemes in the Atlantic, Pacific and Indian Ocean (where equipment for operations under the RDJTF had been based at Diego Garcia in the

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[866] See Government Accounting Office, *Bottom-Up Review: Analysis of DOD War Game to Test Key Assumptions;* Government Accounting Office, *Bottom-Up Review: Analysis of Key DOD Assumptions*, GAO-NSIAD-95-56 (Washington D.C.: Government Accounting Office, 1995).

[867] Northeast Asia being fairly stable in terms of state structures, and the Middle East being dominated by the MRC threat.

[868] Aspin, *Report on the Bottom-Up Review*, p. 31.

[869] Ibid., p. iii. Reportedly, the Pentagon looked at these enhancements when the force structure requirements first defined were several billion dollars above the planned figure. Weiner, 'The Politics of Resource Allocation in the Post-Cold War Pentagon,' pp. 135-136.

[870] Aspin, *Report on the Bottom-Up Review*, pp. 23-24.

1980s), were to be augmented by an additional brigade set of heavy equipment afloat, the ships being "positioned in areas from which they could be sent on short notice either to the Persian Gulf or to Northeast Asia."[871] Strategic lift was also to be improved by additional roll-on/roll-off ships, the continued replacement of the C-141 aircraft, and measures to enhance the "fort-to-port" flow of units in the United States.[872]

Once they arrived in the theatre, US forces were to be able to stop an enemy offensive. Anti-armour capability of early arriving forces was, therefore, at a premium, and the *BUR* included several initiatives to increase capabilities in this regard. The US Army, for example, was to develop new smart submunitions for the Army Tactical Missile System, Multiple-Launch Rocket System, new joint standoff attack missiles and tube artillery. The development and introduction of Longbow radars for AH-64 Apache helicopters was to continue, and the self-deployment of Apaches from overseas bases to be examined.[873] The Navy was to emphasize its contribution to the land battle over blue water sea control.[874] Its F-14 fighters were to be modified to have a ground attack capability, and the capability to fly additional squadrons of F-18 to forward deployed carrier be developed. The Air Force was to improve the conventional bombing capabilities of its heavy bombers and develop new precision and all-weather munitions.[875] However, the threats to be dealt with were now less precisely known and more varied than that during the Cold War, and funding was more constrained. Hence, in line with the concept of *Multi-Threat Planning*, preference was now to be given to multi-purpose aircraft capable of air superiority, strike and support missions over specialized platforms.[876]

In addition to these measures relating to strategic deployments and individual weapons systems, the *BUR* force structure also included modified organisational structures to deal with the larger number of individual threats. European Command's (EUCOM) two divisions in Germany, for example, were to prepare for peace enforcement as well as rapid deployment outside of central Europe, in addition to their traditional NATO mission within Europe itself. With the Balkans and Africa, EUCOM's responsibility included two areas likely to see 'non-traditional' operations, and it was therefore accepted that "[t]hese missions might lead, over time, to changes in the equipment and configuration of Army units stationed in Europe."[877]

Pacific Command and EUCOM were relieved of the force provider role for units stationed in the continental United States but earmarked for their commands. Instead, Atlantic Command assumed command of the majority of US based forces. This change would improve overseas deployments in a variety of scenarios, as

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[871] Ibid., p. 21.

[872] Ibid., pp. 20-21.

[873] Ibid., p. 21. Apaches later self-deployed as Task Force Hawk to Albania during the 1999 Kosovo War.

[874] Ibid., p. 29.

[875] Ibid., pp. 21, 38. However, the Navy lost its deep interdiction capability with the retirement of the A-6 aircraft.

[876] Ibid., p. 36.

[877] Ibid., p. 23.

> The principal purpose of the new command is to ensure joint training and readiness of forces stationed in the United States. As a result of this change, forces would already be accustomed to operating together and could therefore be deployed efficiently to overseas locations when crises arise.[878]

The goal was not full flexibility in overseas deployments. But "Adaptive Joint Force Packages" could be developed for overseas presence missions, containing

> a mix of air, land, special operations, and maritime forces tailored to meet a theater commander's needs. These forces, plus designated backup units in the United States, would train jointly to provide the specific capabilities needed on station and on call during any particular period.[879]

In addition, Atlantic Command would support peacekeeping operations and training, and consolidate and strengthen US planning capabilities for humanitarian operations. Such operations were now also to be funded separately from operations and maintenance accounts.[880]

Ever since the introduction of the Total Force Concept in the early 1970s, the US military used the reserves as an integral part of its force structure—a policy that the *BUR* explicitly continued, as it sought "'compensating leverage'; that is, to use the reserve components to reduce the risks and control the costs of smaller active forces."[881] Adjustments were thus of a quantitative rather than qualitative nature. National Guard and Reserve forces would continue to provide combat support and combat service support units working with the regular forces, as well as combat units that could backfill and relieve active units on operational deployments. Some of them were to be organized and resourced to be able to deploy more quickly.[882] In addition to their role in the total force, low readiness units were however also seen as having a role as an option for expansion of US force structure, in case of "failure of democratic reforms in Russia, Ukraine, and elsewhere in the world."[883]

In summary, the risk pattern of the *BUR* was very close to one of *Gulliver*, as a large number and variety of regional conflicts potentially called for US attention. The theory of victory gave detailed guidance on how to meet these risks, but had to address classes of enemies rather than individual adversaries. Requirements to deal with these classes were deductively inferred through net assessment, but then simplified and combined on the basis of concurrency judgements that reflected inductively gained experience. The overall force structure was an explicit portfolio designed to meet up to two MRCs. Equipment specifications become wider as platforms should be able to fulfil several roles. Given the Cold War legacy, there is no need for industrial surge production capacity, but otherwise US defence planning in the *BUR* shows all defining traits of *Multi-Threat Planning.*

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[878] Ibid., p. 85.

[879] Ibid., p. 25.

[880] Ibid., pp. 75-76, 79, 85.

[881] Ibid., p. 91.

[882] Ibid., pp. 91-94.

[883] Ibid., p. 94.

8.2 Australia—The *Defence 2000* White Paper

The overall framework of the Australian 1987 White Paper remained government policy for close to a decade. The 1991 *Force Structure Review* cut back force structure for financial reasons and allowed for adjustments at the margins that provided increased capability for interventions in the South Pacific.[884] The 1994 White Paper confirmed that the main conclusions of its predecessor were still valid, although further marginal adjustments to account for increasing capabilities of regional militaries had to be made.[885] But in the context of growing regional apprehension of China's policy in the region,[886] the new Coalition government's 1997 *Australian Strategic Policy* Review hinted that a central tenet of the 1987 White Paper may be violated, when it stated that developments in the wider Asia-Pacific influenced Australia's security not just indirectly through the global balance, but through their direct impact on Australia's neighbourhood.[887] The purpose of the 2000 White Paper was thus largely to spell out the consequences that flowed from this shift for defence policy and force structure.[888] It also had to incorporate the experience of the INTERFET (International Force for East Timor) operation, where 4,500 Australian military personnel were, for the first time in living memory, deployed as the lead nation in a major international operation.[889]

8.2.1 Risk Pattern and Concentric Rings

The 2000 White Paper thus had to come to terms with a situation in which Australia was less shielded from adverse developments outside its own immediate regional neighbourhood than before. The government found that the risk of armed conflict between states "is as high in the Asia Pacific region as it is elsewhere in the world."[890] Additional demands were placed on Australia from the fact that "military operations other than conventional war are becoming more common ... including for humanitarian relief, evacuations, peacekeeping and peace-enforcement." [891] Both of these developments occurred in an international environment shaped by two major factors that had overall positive influence. The first, globalisation, benefited Australia's security through growing integration, but the White Paper cautions that nation states

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[884] Department of Defence, *Force Structure Review*, p. 28.

[885] Department of Defence, *Defending Australia* (Canberra: Commonwealth of Australia, 1994).

[886] Allen S. Whiting, 'ASEAN Eyes China: The Security Dimension,' *Asian Survey*, vol. 37, no. 4 (April 1997), pp. 299-322.

[887] Department of Defence, *Australia's Strategic Policy* (Canberra: Commonwealth of Australia, 1997), pp. 9-10. However, wish was probably father of the thought when some observers concluded that the era of 'Defence of Australia' had come to an end with that document. Michael Evans, 'From Deakin to Dibb: The Army and the Making of Australian Strategy in the 20th Century,' p. 25.

[888] For an overview of how much the debate at the time had moved away from the problems of defending the North, see for example Anthony Bergin, ed. 'Australian Security in a New Era,' *Special Report*, no. 5 (Canberra: Australian Defence Studies Centre, Australian Defence Force Academy, 1998). See also Desmond Ball, 'Australian Defence Planning: Problems and Prospects,' *Pacifica Review*, vol. 12, no. 3 (October 2000), pp. 281-294; Horner, *The Australian Centenary History of Defence, Vol. VI: Making the Australian Defence Force,* pp. 95-101.

[889] Although INTERFET fought a number of skirmishes, the relatively smooth nature of the operation was by far not clear ex-ante. See, for example, Adam Cobb, 'East Timor and Australia's Security Role: Issues and Scenarios,' *Current Issues Brief*, no. 3 (Canberra: Parliamentary Library, 1999).

[890] Department of Defence, *Defence 2000*, p. 9.

[891] Ibid., p. viii.

remain principal security actors, and that nationalism as well as regional dynamics were on the rise. According to the White Paper, the factors underlying the second major factor, US primacy, were not endangered, but again there was a possibility that US national will to bear the associated burdens could be eroded in the future.[892]

The overall outlook was thus not necessarily less optimistic than in 1987, and the White Paper does not identify any particular and unequivocal risks to Australia. However, the confidence that could be placed in the continuity of the overall benign situation was noticeably reduced. At the same time, the margin for failure was further limited by the continuing increase of across-the-board military capabilities in the Asia-Pacific and South-East Asia. Regional air forces become more capable through the introduction of fourth-generation fighters, of Airborne Warning and Control System (AWACS) aircraft and air-to-air refuelling.[893] Longstanding Australian advantages are thus eroding:

> The effect of all these changes is that, increasingly over the coming decade, the capabilities of our F/A-18 aircraft will be outclassed by a number of regional airforces.[894]

Modern anti-ship missiles had proliferated and could be launched by growing numbers of platforms, including surface ships, submarines and aircraft. Regional navies had improved their defences against comparable Australian systems. Submarine- as well as ASW capabilities were on the rise, as are air and naval strike and land force capabilities with the introduction of night-vision equipment, helicopters, and armoured vehicles. "Intelligence, surveillance, communications, command and control capabilities, and the whole spectrum of information warfare, will expand significantly", the White Paper writes, at a time when also "a wide range of non-state actors, including criminals and insurgents, [are] continuing to gain access to modern, sophisticated weaponry."[895]

In this environment, uncertainty and precautionary considerations come to the fore again as the prime justifications for Australian defence efforts, which are less dominated by the aversion of the very specific yet unlikely risks of the 1987 White Paper. But while the 1976 White Paper had prepared for the threats from *changes* to the Asian security environment, notably in the global balance, the timelines for the emergence of strategic risks have shrunk significantly, as they were now likely to arise from the relatively fluid present environment.[896] Increased regional capabilities and regional volatility undermined the applicability of strategic warning and expansion considerations, which are notable for their relative absence in the 2000 White Paper:[897]

> Striking that balance [between security and fiscal responsibility] is made harder by the environment of uncertainty in which defence decisions must be made. We cannot

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[892] Ibid., pp. 15-16.

[893] Ibid., pp. 24-25.

[894] Ibid., p. 85.

[895] Ibid., p. 26.

[896] See also Paul Dibb, 'The Remaking of Asia's Geopolitics,' *Working Paper,* no. 324 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1988).

[897] A point also made in Graeme Cheeseman, 'Defence and Security,' in *The National Interest in a Global Era: Australia in World Affairs 1996-2000*, eds. James Cotton and John Ravenhill (Oxford: Oxford University Press, 2001), p. 202.

> predict with certainty when or where Australia might need to use its armed forces. Today we are among the more secure countries in the world. But our defence policy must take account of the possibility that changes in the international situation, especially in the dynamic Asia Pacific region, could produce a more unstable and threatening strategic situation. ... Our defence decisions today therefore need to consider the strategic environment we might face after 2010. We must take account of the possibility of major changes over that time, including for the worse.[898]

Since the area of more immediate concern for Australian security has widened at the same time that timelines for the emergence of risks have shrunk, the White Paper needs to prioritise, which it does on the basis of geographical considerations:

> We have given highest priority to the interests and objectives closest to Australia. In some circumstances a major crisis far from Australia may be more important to our future security than a minor problem close at hand. But in general, the closer a crisis or problem to Australia, the more important it would probably be to our security and the more likely we would be able to help to do something about it.[899]

The White Paper operationalises this idea of risk prioritisation in the form of five 'concentric rings'—regrettably mislabelled as a 'strategy' in the White Paper, although they do not relate to means or ways of the defence effort.

The first of these rings is the defence of Australia against armed attack. The risk assessment here is very similar to those of preceding White Papers—Australia's territorial integrity is seen as very secure, and invasion is judged to be credible only after significant changes in the security environment. Major attacks are considered very unlikely but not impossible, and the White Paper explicitly mentions ballistic missiles and WMD capabilities in this regard.[900] Minor attacks, a new label for what were low and escalated low-level contingencies in the 1987 White Paper, are again seen as possible with little warning, given regional capabilities, but still unlikely.[901] Overall, however, the White Paper still judges that "[e]ven if the risk of an attack on Australia is low, the consequences would be so serious that it must be addressed."[902]

The second ring relates to

> the stability, integrity and cohesion of our immediate neighbourhood, which we share with Indonesia, New Zealand, Papua New Guinea, East Timor and the island countries of the Southwest Pacific. We would be concerned about major internal challenges that threatened the stability and cohesion of any of these countries. We would also be concerned about any threat of outside aggression against them. We have a key interest

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[898] Department of Defence, *Defence 2000*, pp. 6-7.

[899] Ibid., pp. 29-30.

[900] Later criticism that threats from WMD were not given sufficient attention in the White Paper are thus not fully correct, although that document did conceptualize of them in a geostrategic framework that still emphasizes Australia's remote position in the world. For a critique, see Alan Dupont, 'Transformation or Stagnation? Rethinking Australia's Defence,' *Working Paper*, no. 374 (Canberra: Strategic and Defence Studies Centre, Australian National University, 2003).

[901] Department of Defence, *Defence 2000*, pp. 23-24.

[902] Ibid., p. 30. The White Paper also, again, mentions the challenge of policing the Exclusive Economic Zone. (p. 12).

> in helping to prevent the positioning in neighbouring states of foreign forces that might be used to attack Australia.[903]

The White Paper writes that "[p]olitical and social evolution is strengthening the robustness, legitimacy and resilience of the political systems in many countries",[904] especially in Indonesia. However, that county still faces challenges related to economic, political and religious and ethnic stability which would, because of the country's importance, also affect Australia.[905] At the same time, the outlook for other states in the region such as East Timor, Papua New Guinea or the South Pacific countries regarding political, economic, separatist and ethnic tensions remains much bleaker, so that the "viability of some of these nations will remain under significant pressure over the years ahead."[906]

Stability and security between the states in South East Asia forms the third concentric ring. Australia's

> interest is to maintain a resilient regional community that can cooperate to prevent the intrusion of potentially hostile external powers and resolve peacefully any problems that may arise between countries in the region. We would be concerned about any major external threat to the territorial integrity of the nations in our nearer region, especially in maritime Southeast Asia ...[907]

The fourth ring relates to the avoidance of major conflict and instability in the Asia-Pacific as a whole, notably in Northeast Asia. Australia is clear about the need "to avoid the emergence in the Asia Pacific region of a security environment dominated by any powers whose strategic interests might be inimical to Australia's."[908] However, economic dynamism is expected to "put strains on old relationships, raise new expectations and perhaps offer new temptations",[909] with consequences for the critically important relationships between the major powers, particularly China, the United States and Japan. The White Paper thus warns that

> significant problems remain in the [Sino-US] relationship - especially concerning the issue of Taiwan. It is therefore possible that US China relations may be a significant source of tension in the region in coming years.[910]

It goes on to state that

> There is a small but still significant possibility of growing and sustained confrontation between the major powers in Asia, and even of outright conflict. Australia's interests

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[903] Ibid., pp. 30-31.

[904] Ibid., pp. 19-20.

[905] Ibid., pp. 20-21.

[906] Ibid., p. 23.

[907] Ibid., p. 31.

[908] Ibid.

[909] Ibid., p. 17.

[910] Ibid., p. 18. The White Paper also mentions a re-united Korea as another possible source of tension.

> could be deeply engaged in such a conflict, especially if it involved the United States, or if it intruded into our nearer region.[911]

In a new and significant deviation from past practice, the White Paper comments on the two-way nature of the ANZUS commitments that "Australia's undertakings in the ANZUS Treaty to support the United States are as important as US undertakings to support Australia."[912] Finally, the fifth ring relates to developments elsewhere and "the efforts of the international community, especially the United Nations, to uphold global security."[913]

Most, if not all, of the concerns mentioned in the 2000 White Paper were not new to Australian defence considerations. However, the more fluid international system, regional dynamics and globalisation meant that the country can no longer consider itself as isolated from such developments, as it still had done in 1987. The definition of the five concentric rings was thus an attempt to come to terms with the fact that Australia was facing a growing number of risks, all of which the Government wanted to address, and all of which combined a number of possible enemies or crisis. In their combination and concurrency, the risks they represent thus placed the country in the position of a *Gulliver* tied down by multiplying security concerns.[914]

8.2.2 Theory of Victory

As before, the government calls upon the ADF to assist civilian authorities on a routine basis, notably in the areas of border security and coastal surveillance, maritime search and rescue, counterterrorism, disaster relief and, in a new category, the defence against cyber attack. Military involvement in these tasks remains limited to the extent that it does not interfere with preparations for the defence against armed attack.[915] The government also continues the policy of defence cooperation on a bilateral and multilateral basis with countries in the neighbourhood. It aims to remain "the key strategic partner" of Papua New Guinea and the nations in the Southwest Pacific, and continues the Pacific Patrol Boat Project.[916] In South East Asia, Australia aims to enhance transparency through bilateral technical and education exchanges and cooperation through, for example, the ASEAN Regional Forum. Regional relationships are underpinned by regular deployments of ADF units to the region. Indonesia, Thailand, East Timor, the Philippines and Vietnam, as well as Australia's FPDA partners Singapore and Malaysia are explicitly mentioned.[917]

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[911] Ibid., p. 19.

[912] Ibid., p. 36.

[913] Ibid., p. 31.

[914] For a less sympathetic commentary that makes the same point, see Andrews, *The Australian Centenary History of Defence, Vol. V: The Department of Defence*, p. 303. See also Hugh White, 'Security, Defence, and Terrorism,' in *Trading on Alliance Security: Australia in World Affairs 2001-2005*, eds. James Cotton and John Ravenhill (Oxford: Oxford University Press, 2007), esp. p. 182.

[915] Department of Defence, *Defence 2000*, pp. 13, 53-53.

[916] See also Steve Bell, 'The Pacific Patrol Boat Project,' *Papers in Australian Maritime Affairs*, no. 16 (Canberra: Sea Power Centre, 2005).

[917] Department of Defence, *Defence 2000*, pp. 37-44.

Regarding those parts of the theory of victory with relevance to force planning, the White Paper confirms that Australia should be self-reliant in combat forces required for the defence of Australia against armed attack (i.e. the first ring), and that the relevant military strategy would centre on the defence of the maritime approaches.[918] In doing so, it drops the term 'defence in depth' that had still featured in the 1994 White Paper,[919] and instead takes a more assertive operational posture, writing that

> if attacked, Australia would take a highly proactive approach in order to secure a rapid and favourable end to hostilities. We would be concerned to ensure that hostilities were concluded swiftly and decisively, without harming unnecessarily the prospects for future relations with the adversary. However, we would aim to minimise Australian casualties and damage. We would therefore seek to attack hostile forces as far from our shores as possible, including in their home bases, forward operating bases and in transit. We would aim to seize the initiative and dictate the pace, location and intensity of operations.[920]

In order to implement this strategy, ADF forces would continue to be equipped to give them a 'knowledge edge' over the enemy,[921] a term that used allusions to the American RMA to conceal the steady erosion of Australia's regional capability advantage. Unlike the nearly contemporary US *QDR*, however, the White Paper does not see technology as a source of significant uncertainty regarding the operational part of its theory of victory. It professes relative confidence in the ability to take advantage of new technologies, and to introduce them in select areas into the Australian defence industry.[922]

As before, the forces designed to defend Australia could also be used to make "a relatively modest contribution to any wider UN or US-led coalition"[923] in support of global stability. These forces thus continue to be drawn from force structure procured for higher priority tasks. Australia still does not expect to carry strategic weight globally (i.e. in the fifth ring).

However, the greater scope of risks that the government saw Australia confronted with called for a theory of victory with commensurately greater scope as well, in particular for the second, third and fourth ring. The White Paper sees military power as an integral part of that theory, as "[t]he sense of security that our armed forces give us

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[918] Ibid., pp. 46-47.

[919] Department of Defence, *Defending Australia*, pp. 28-30.

[920] Department of Defence, *Defence 2000*, pp. 47-48. The White Paper also writes that "[w]e do not intend to seek a strike capability large enough to conduct sustained attack on an adversary's wider civil infrastructure; our capability would be focussed on an ability to attack those militarily significant targets that might be used to mount or support an attack on Australia. We do, however, want to have the capacity to mount sustained strike campaigns against a significant number of such targets." (p. 92).

[921] Ibid., p. 111. The term had been introduced in the 1997 ASP Paper (Department of Defence, *Australia's Strategic Policy*, pp. 56-57). See also Michael Evans, 'Australia and the Quest for the Knowledge Edge,' *Joint Forces Quarterly*, no. 30 (Spring 2002), pp. 41-51.

[922] Department of Defence, *Defence 2000*, pp. 56-57, 100, 107-109, 111. See also Christopher Flaherty, 'The Relevance of the US Transformation Paradigm for the Australian Defense Forces [sic!],' *Defense & Security Analysis*, vol. 19, no. 3 (September 2003), pp. 219-240.

[923] Department of Defence, *Defence 2000*, p. 52.

underpins our optimistic outlook and the confidence with which we engage the region."[924] Australia "requires strategic policy which is integrated with wider diplomatic and political policies",[925] since

> Australia's strategic interests are compatible with the interests of so many other regional countries. This is important to Australia's security, because we do not have the power or reach to protect many of our interests on our own.[926]

However, Australia is not New Zealand, and the White Paper asserts that "as a middle-size power, there is much we can and should do to help to keep our region secure, and support global stability."[927]

One way Australia can do this is by more explicitly leveraging its influence through the US alliance. The White Paper writes that Australia would "continue to support the United States in the major role it plays in maintaining and strengthening the global security order",[928] as "[o]ne of the main benefits we seek from the alliance is the support it gives to sustained US engagement in the Asia Pacific region."[929] It also makes explicit that "Australia relies on the extended deterrence provided by US nuclear forces to deter the remote possibility of any nuclear attack on Australia."[930]

Obviously, the use of the US alliance to influence regional developments is inextricably linked with the increased emphasis on support to US operations in case of a major conflict in Asia.[931] The White Paper thus also writes that Australia would provide military support to regional coalitions in the Asia-Pacific and, especially, South East Asia—something that is not included in its 1987 predecessor. In the wider Asia-Pacific (i.e. the fourth ring),

> we would want to have the capacity to make a significant contribution to any coalition we thought it appropriate to join. In most cases the United States would lead such a coalition, and we would expect our forces to operate closely with US forces.[932]

In Southeast Asia (i.e. the third, and especially second ring), ambitions in terms of strategic weight are greater as "Australia would want to be in a position, ... to help our neighbours defend themselves"[933] against external aggression. Here, Australia

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[924] Ibid., p. 8.

[925] Ibid., p. 9.

[926] Ibid., p. 33.

[927] Ibid., p. 29.

[928] Ibid., p. 32.

[929] Ibid., p. 35.

[930] Ibid., p. 36. A contradiction with the self-reliance for defence in conventional conflict (see Stewart Woodman, 'Not quite the full Monty?: analysing Australia's 2000 Defence White Paper,' *Australian Journal of International Affairs*, vol. 55, no. 1 (April 2001), p. 33.)is only superficial, since ballistic missile attacks would originate from outside the region and thus originate from wars of choice (from Australia's perspective) that would in all likelihood already involve the United States.

[931] With all the diplomatic problems that entailed, already apparent at the time. See William T. Tow, 'Australia and the United States,' in *The National Interest in a Global Era: Australia in World Affairs 1996-2000*, eds. Cotton and Ravenhill, pp. 171-192.

[932] Ibid., p. 51. See also p. 44 for the same formulation regarding the South West Pacific.

> would want to be able to make a substantial contribution ... especially if it involved our undertakings under the FPDA.[934]

In terms of operational strategy, the White Paper extends the ADF emphasis on maritime operations to the participation in regional coalitions, since "[f]ortunately the strategic geography of our neighbourhood makes this feasible."[935] Australia's contribution would thus concentrate on air and naval forces, complemented by special operations troops, while general purpose land forces would be largely limited to securing bases. These do *not* need to be conquered amphibiously, since the White Paper makes clear that Australia "would provide such support only at the request of a neighbouring government, and would expect to be able to operate from bases in its territory."[936]

A third part of the overall Australian theory of victory that receives new, stronger emphasis are Australian-led peace enforcement, peacekeeping, and relief missions to stabilize its close neighbourhood in the second ring. The White Paper writes that Australia "should be prepared to be the largest force contributor to such operations", and that "planning needs to acknowledge that we could be called upon to undertake several operations simultaneously".[937] At the same time, however, it cautions that "it is important that we recognise the limits to Australia's ability to influence and help in major crises, even in our immediate neighbourhood",[938] and that "our approach to lower level regional crises needs to recognise that the use of armed forces is not always a useful or practical response to a crisis."[939] Nevertheless, "[t]he boundary between a benign situation and open conflict, either against local irregulars or more capable armed forces, can become blurred,"[940] and

> Even in benign situations, an evident capability to use force can help to keep things peaceful. When trouble starts, the ability to respond promptly with a clear predominance of force will often restore peace quickly ...[941]

The White Paper thus explicitly subscribes to the peace-through-superior-firepower school even in stabilization missions:

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[933] Department of Defence, *Defence 2000*, p. 48.

[934] Ibid., p. 51. See also p. 44 for the same formulation regarding the South West Pacific.

[935] Ibid., p. 48.

[936] Ibid., p. 49. A sentence that puts RAN plans for the procurement of two large LHD on a somewhat tenuous relationship with strategic guidance. For the Navy's (and Army's) case, see Bruce McLennan and Gregory P. Gilbert, 'Amphibious Ships—Bigger is Better,' *Quadrant*, vol. 50, no. 9 (September 2006), pp. 52-59.

[937] Department of Defence, *Defence 2000*, p. 48.

[938] Ibid., p. 50.

[939] Ibid., p. 51.

[940] Ibid., p. 10.

[941] Ibid., p. 12.

> Success in pacifying an unstable situation often depends on a demonstrated ability and willingness to use preponderant force swiftly in response to any violence, so forces need to have ample firepower.[942]

In addition, it reminds that

> there can be potential for escalation by intervention of well-armed conventional forces. We need to have capabilities available to deter or, if need be, respond to such escalation. This would often involve not just land force capabilities but also air and naval forces to protect force elements as they deploy, maintain lines of supply and provide additional firepower.[943]

In one sentence, the theory of victory of the 2000 White Paper thus boils down to a willingness to use Australian military force to defeat threats to Australian security both close to home and afar. The prioritisation between five rings of fairly distinct strategic risks, however, means that this overall approach falls out into a corresponding number of distinct sub-strategies, [944] including the traditional 'Defence of Australia', stabilization missions in the region, and contributions of varying extent to maritime coalitions in South East Asia and further afield. The strategic weight Australia would expect to carry in these operations ranges from the full extent for the first ring, to none in the fourth and, especially, fifth. Notably, the theory of victory does not relate to any particular enemies—instead, similar threats within each ring are to be met by similar responses.

8.2.3 Codification of Requirements

Unlike its predecessors of 13 years earlier, the 2000 White Paper thus did not provide political guidance that focussed on one major task. It acknowledges that "[o]ver the next decade, we can be reasonably sure that governments will consider using the ADF in circumstances that we have not envisaged", and goes on to explain that

> Our aim is to provide Australia with a set of capabilities that will be flexible enough to provide governments with a range of military options across a spectrum of credible situations within the priorities set out in this [White Paper].[945]

In codifying these credible situations, the White Paper continues to use regional capabilities as the benchmark of technological sufficiency. The White Paper assumes, like its 1987 predecessor, that in the case of a major attack on Australia enough preparation time would be available to expand existing capabilities. The eroding Australian edge however reduces margins of error for strategic warning thus defined, and the White Paper reduced ambitions to demanding that "our forces have an overall

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[942] Ibid., p. 50. These plans ultimately led to the program for a 'hardened and networked Army'. See Australian Army, *The Hardened and Networked Army* (Canberra: Department of Defence, 2005).

[943] Department of Defence, *Defence 2000*, p. 50.

[944] This is not to say that the White Paper did not suffer from the absence of a national security strategy. See Joint Standing Committee on Foreign Affairs, Defence and Trade, *Australia's Maritime Strategy* (Canberra: Parliament of the Commonwealth of Australia, 2004).

[945] Department of Defence, *Defence 2000*, p. 54.

capability edge in key roles."[946] In particular, it advocates air combat capability "at a level at least comparable qualitatively to any in the region".[947] Nevertheless, the quantity and type of forces required to meet lesser contingencies in the defence of Australia still provides a clear, if more demanding, benchmark for the structuring of the ADF:

> The Government has reaffirmed that the primary priority for the ADF is to maintain the capability to defend Australian territory from any credible attack, without relying on help from the combat forces of any other country. ... This provides a clear basis for our defence planning.[948]

As before, the force structure acquired for the defence of Australia will be used to generate forces for other mission.[949] But the rise in importance of these missions means that the 2000 White Paper cannot simply assume its adequacy any more. The ADF thus becomes a portfolio of forces that must be able to generate adequate forces for a number of different, distinct and demanding missions *within the overall quantitative limits and requirements set by the defence of Australia.* The defence of Australia does not dominate areas such as training or logistics any more as it had in the framework of the 1987 White Paper. Since 1997 already, operational readiness was to be determined by regional contingencies,[950] and the White Paper complemented this by highlighting the importance of sustainment and rotation in extended peacekeeping operations.[951] Major changes also flow on for intelligence, whose role in the estimation of warning times was now to be complemented by the capability to monitor, and operational support in, several major crises.[952]

Quantitative portfolio considerations are dominated by the fact that overall force levels are determined by the defence of Australia. This, however, already implies the concurrency judgment that all other operations would cease and deployed forces be repatriated in the occasion. With regards to other types of operations, the White Paper states that

> We ... do not plan on the ability to undertake major operations simultaneously in more than one theatre of operations. However, within a theatre of operation, especially in the defence of Australia, we would need forces large enough to undertake some types of operation simultaneously in widely separated locations. And in our immediate region,

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[946] Ibid., p. 55. See also Paul Dibb, 'The Relevance of the Knowledge Edge,' *Working Paper*, no. 329 (Canberra: Strategic and Defence Studies Centre, Australian National University, 1998). It is somewhat ironic that proponents of the defence of Australia school had to defend themselves first for placing emphasis on low-level contingencies during the 1980s, and then for not discounting higher-intensity operations in the late 1990s and 2000s. See Hugh White, 'Australian defence policy and the possibility of war,' *Australian Journal of International Affairs,* vol. 56, no. 2 (July 2002), pp. 253-264.

[947] Department of Defence, *Defence 2000*, p. 85.

[948] Ibid., p. 46.

[949] Ibid., pp. 12, 49-50, 52, 92.

[950] Department of Defence, *Australia's Strategic Policy*, p. 41.

[951] Department of Defence, *Defence 2000*, pp. 49-50.

[952] Ibid., p. 95.

> we may need to be able to sustain one major deployment and undertake a lesser deployment at the same time.[953]

The portfolio considerations that determine both the quantity and quality of force structure are thus much more prominent and evident for the latter characteristic. Roughly, portfolio roles follow service lines. The White Paper explains, in what is the conceptual core of the document, that

> a major Australian contribution to a coalition for higher intensity operations would more likely involve air or naval forces than land forces. The air and naval forces we develop for the defence of Australia will provide the Government with a range of options to contribute to coalitions in higher intensity operations against well-armed adversaries. Our land forces would be ideally suited to provide contributions to lower intensity operations including peace-enforcement, peacekeeping and many types of humanitarian operations.[954]

Land forces thus preserve their previous role of supporting the defence of the maritime approaches through base protection and the defeat of any enemy incursions on Australian territory.[955] Their role as an expansion base, already significantly de-emphasized 13 years before, is explicitly dropped.[956] In addition, they are now to conduct peace enforcement, peacekeeping, stabilization and relief missions in the near neighbourhood.[957] The White Paper explicitly and repeatedly states that there is thus no requirement for general purpose forces to be able to operate with heavy armour in a high-intensity conflict environment, although it decides that "our land forces will have the combat weight they need to achieve their missions without undue risk."[958] Emphasis also lies on "logistics and support capabilities, including deployable medical facilities, cargo-handling systems, water and fuel supply facilities, and engineering capabilities."[959] Regarding the concurrency of operations, the White Paper demands that the Army "be able to sustain a brigade deployed on operations for extended periods, and at the same time maintain at least a battalion group available for deployment elsewhere",[960] an intuitionist rather than analytical judgement of sufficiency based both on the size of the Army, and the INTERFET experience.[961]

Air and naval forces preserve their traditional role of defeating attacks against Australia by aircraft and naval vessels as they are available to regional militaries, as well as strike. In addition, they are to be able to contribute to coalition operations in high-

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[953] Ibid., p. 56.

[954] Ibid., p. 52.

[955] Ibid., p. 47.

[956] Ibid., p. 79. Ghosts from the past did, however, raise up their heads again in: Joint Standing Committee on Foreign Affairs, Defence and Trade, *The Suitability of the Australian Army for Peacetime, Peacekeeping and War* (Canberra: The Parliament of the Commonwealth of Australia, 2000).

[957] Department of Defence, *Defence 2000*, p. 54.

[958] Ibid., p. 79. See also p. 52.

[959] Ibid., p. 50.

[960] Ibid., p. 80.

[961] Hugh White, personal email to the author, 29 September 2006.

intensity conflicts.[962] A main practical consequence of this new, second formal mission is that interoperability with the United States, which had been de-emphasized in the 1987 White Paper, now becomes "an important issue in capability development"[963]—the 1997 *Australian Strategic Policy* Paper had even given it "highest priority".[964] In spite of major replacement programs for both the RAN and RAAF, the White Paper is, however, strangely silent on how quantitative sufficiency for the defence of Australia should be measured. The detailed way in which the Dibb Review had approached this problem was probably not optimal. However, the absence of explicit justification for the planned one-to-one replacement of the F-18 and F-111 on the one hand, and the reduction in the number of major RAN surface combatants to eleven on the other,[965] is one of the major omissions of the document.[966]

8.2.4 Force Structure Concept

Two main trends were thus driving requirements placed on the ADF beyond those of the 1987 capability program—the erosion of Australia's regional capability edge, and the new formal tasks of high-intensity maritime expeditionary and regional stabilization operations. Fulfilling the resulting additional demands was, to some degree, facilitated by the government's commitment to an annual 3% real growth of the defence budget over ten years, which also allowed for an increase in personnel from 51,500 to 54,000 over the same period.[967]

The ADF continued to improve its capabilities for the defence of Australia within the operational framework outlined in the 1987 White Paper. Enhancements were made to, for example, the OTHR system and the Air Defence Ground Environment.[968] The Army also retained a number of units whose sole role was in the defence of Australia, such as the three Regional Force Surveillance Units in the North.[969] A collocated Theatre Headquarters and two deployable joint headquarters were to be developed,[970] and increased investments made into the intelligence support to operations.[971] Overall, however, the change from a force built as a hedge against low and escalated low-level conflict to one providing a portfolio of forces primarily involved practical adjustments that allowed each service, and in particular the Army, to become more expeditionary within the existing force structure.

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[962] Department of Defence, *Defence 2000*, pp. 53-54, 85, 88, 92.

[963] Ibid., p. 55.

[964] Department of Defence, *Australia's Strategic Policy*, p. 48.

[965] Eight ANZAC frigates and three new Air Warfare Destroyers.

[966] Hugh White, principal author of the White Paper, later stated that the document was drafted under instructions from the Cabinet that no capability was to be cut, and obsolete equipment to be replaced. Hugh White, 'Buying Air Warfare Destroyers: A Strategic Decision,' *Issues Brief* (Sydney: Lowy Institute, 2005), p. 3.

[967] Department of Defence, *Defence 2000*, pp. xii, xvii.

[968] Ibid., pp. 87, 96.

[969] Ibid., p. 81. The domestic counterterrorism responsibilities of the SAS were also retained.

[970] See also David Horner, *The Higher Command Structure for Joint ADF Operations*, Presentation at the Strategic and Defence Studies Centre, Australian National University, 10 October 2006.

[971] Department of Defence, *Defence 2000*, pp. 96-97.

Since most Army units were now to be able to deploy overseas and thus outside the range of domestic logistics support, deployment and sustainment of expeditionary forces became a focus of Army force structure enhancements. The White Paper decided to replace all three amphibious ships at the end of their lifetimes, as well as the fleet of landing craft.[972] New tactical airlift aircraft were to replace the Caribou, and C-130 Hercules were to be refurbished. Both transport aircraft and helicopters were to be supplied with improved electronic warfare self-protection, as they would from now on regularly deploy outside Australia. In addition, the logistics backbone of the Army would be enhanced by investments into specialist transport and petroleum supply units, new water and fuel supply and bridging systems, and the procurement of deployable medical facilities.[973]

Army's capabilities in both the defence of Australia and expeditionary operations were further enhanced by improvements to mobility and firepower. Most prominent were two squadrons of armed reconnaissance-, and an additional squadron of troop-lift helicopters, and upgrades to 350 M113 vehicles. New shoulder-fired weapons for the defeat of armoured vehicles and bunkers, improved infantry fighting equipment as well as new short range air defence and mortar systems, a tactical Unmanned Aerial Vehicle (UAV) and field artillery systems were to be procured.[974]

Sustainment in longer operations was facilitated by the designation of 7th Brigade as a follow-on force (if it was not required for immediate deployment).[975] In addition, the reserves were even further integrated with the regulars. The 1987 White Paper had changed the reserve's focus from one of a mobilisation base to one of operating in conjunction with the regular army in the unlikely case of an attack on Australia. Now, they were also to provide round-up, sustainment and surge capabilities for expeditionary operations on a regular basis, which required additional changes to legislation, reserve readiness and equipment.[976] The two-role character of the regular Army thus extended into the reserve component, and provided additional wherewithal to deal with the increased demands placed on the defence force.

Force structure decisions regarding the RAAF and RAN were dominated by the replacement of major systems close to the end of their operational lifetimes. With regards to the RAAF, these were primarily the F-18 and F-111, to be replaced by a common type of aircraft after 2012, and the ageing tanker aircraft. New AWACS aircraft were to join the ADF for the first time. With regards to the RAN, patrol boats and FFGs were to be succeeded by new and more capable ships, supply vessels and

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[972] In parallel, the Army began to develop concepts of operations for manoeuvre operations in a littoral environment. Russell Parkin, 'A Capability of First Resort: Amphibious Operations and Australian Defence Policy 1901-2001,' *Working Paper*, no. 117 (Canberra: Land Warfare Studies Centre, 2002), p. 37-39.

[973] Department of Defence, *Defence 2000*, pp. 84.

[974] Ibid., pp. 82-83.

[975] Ibid., pp. 81.

[976] Ibid., pp. 69-71, 81-82. For the challenges that these new tasks posed for the existing reserve force structure, see for example Peter Robinson, Oneeka Robb, and Len Crossfield, 'Australian Defence Force Reserves,' *Audit Report*, no. 33 (Canberra: National Audit Office, 2001).

heavy torpedoes were to be replaced with new systems, and major refurbishments to be undertaken of Seahawk helicopters as well as P-3C Orion.[977]

Given the demands of expeditionary high-intensity maritime operations, the 'fit-for-not-with' policy had already been abandoned in 1997.[978] The 2000 White Paper included further improvements to existing systems that would allow them to operate against both increasingly capable systems in the region, and in high-intensity coalition operations. Mainly, these included improved electronic self-defence capabilities of the F-18 and F-111 aircraft, new radar and air-to-air missiles for the F-18 and standoff capabilities for the F-111. ANZAC frigates were to get improved self-defence systems and be fitted with Harpoon anti-ship missiles, and the capabilities of both submarines and P-3C Orion ASW aircraft be improved in their respective roles.[979]

In summary, the risk pattern in the 2000 White Paper was close to *Gulliver* as Australia saw it necessary to deal with a large number of disparate risks, albeit of varying geographic distance and political importance. The concept of the concentric circles allowed the theory of victory to deal with whole classes of risk. Requirements were deductively inferred via the consideration of regional capabilities. However, as Australia did not (or only to some extent) carry strategic weight in four out of five circles, it had significant freedom to determine the quantitative requirements of all rings other than the defence of Australia. The concurrency judgement that all operations would cease if Australia itself had to be defended thus also set the quantitative upper limit of operation in the other rings. The ADF force structure became a portfolio in which all forces would be used in the defence of Australia. In addition, the Army would perform stabilization operations, and maritime forces higher-intensity coalition operations. The White Paper was largely moot on general characteristics sought from weapons platforms, and on industry policy. Overall, however, it shows nearly all of the defining traits of *Multi-Threat Planning*.

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[977] Department of Defence, *Defence 2000*, pp. 85-87, 90-91.

[978] Department of Defence, *Australia's Strategic Policy*, pp. 39-40.

[979] Department of Defence, *Defence 2000*, pp. 86, 89, 90-91, 93.

CHAPTER 9:

TASK-BASED PLANNING

The significant uncertainty about strategic risks for which *Task-based Planning* is appropriate is likely to be transitional. The ideal concept includes the generation of new knowledge through experimentation and 'probing' of adversary reactions, which would assist in moving away from requirements defined around generic operational tasks without a direct logical foundation in coherent theories of victory. The following two case studies are thus largely complementary: While the 2001 *QDR* demonstrates the transitional and even experimental nature of the concept, the 1991 New Zealand Defence White Paper uses codification through tasks in a more explicit fashion.

FIGURE 30: TASK-BASED PLANNING OVERVIEW

Risk Pattern	*Ideal Pattern*	'Un-Order'
	Number of threats	Many
	Enemy's theory of victory	Not Understood
	Risk at which time?	Short and long-term
Theory of Victory	*Specificity / Level of Detail*	Not specific
	Risk Treatment Approach	Adaptive
Codification and Requirements	*Main Inference*	Abduction / Own Forces
	Reduced by	Induction / Experience regarding nature of war
	Defined through	Physics and nature of war
	Concentrated at which time?	Short-term (since no warning can be expected)
Force Structure	*Characteristic sought*	Flexibility
	Platforms	Multi-Role or Modular
	Technical specifications	Imprecise and can be traded for cost, time, or experience
	Development and procurement approach	Evolutionary acquisition, spiral development

9.1 United States—The 2001 *Quadrennial Defense Review*

The 2001 *QDR* presented the new Bush administration with an opportunity to outline its plans for the area of defence policy. The authors of the Review saw its task as twofold:

> First, it had to address significant concerns regarding the near-term ability of the force to protect and advance U.S. interests worldwide in a dangerous and evolving security

> environment. Second, it had to implement the President's goal of transforming the Armed Forces to meet future security challenges.[980]

As the following discussion of the document will demonstrate, both of these tasks involved significant uncertainties—underscored by the 9/11 attacks on America only days before the publication of the Review. More so than any of the other documents discussed in this thesis, but congruent with *Task-based Planning*, the *QDR* itself thus stated that "this report represents not so much an end but a beginning."[981]

9.1.1 Risk Pattern

The 2001 *QDR* takes a noticeably darker view of the future than the *BUR*. While the latter had been filled by a sense of relief about the end of the Cold War and focused on the risk of regional instability and aggression that seemed to present fairly straightforward challenges, the *QDR* writes that "the United States cannot take its recent successes for granted or mistakenly assume that no other nation or group will seek to challenge the United States in the future".[982] In "a geopolitical setting that is increasingly complex and unpredictable,"[983] the *QDR* asserts that "[t]here are many threats against this Nation, and they will take many forms."[984] Therefore, the risk pattern developed in the Review is based on abductive considerations, in addition to more precisely known and observable risks.[985]

The basis of the abductive parts of the *QDR* assessment is twofold. First, the Review defines US national interests that could be threatened in a much more detailed and operationalised fashion than the *BUR* as:

- Ensuring U.S. security and freedom of action, including
    - U.S. sovereignty, territorial integrity, and freedom
    - Safety of U.S. citizens at home and abroad
    - Protection of critical U.S. infrastructure
- Honoring international commitments, including:
    - Security and well-being of allies and friends
    - Precluding hostile domination of critical areas, particularly Europe, Northeast Asia, the East Asian littoral, and the Middle East and Southwest Asia

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[980] Statement of the Chairman of the Joint Chiefs of Staff, in Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 67.

[981] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. vi.

[982] Ibid., p. 61.

[983] Ibid., p. 6.

[984] Ibid., p. 1.

[985] For a survey of perceived future risks in the lead-up of the *QDR*, see Sam J. Tangredi, 'The Future Security Environment, 2001-2025: Toward a Consensus View,' in *QDR 2001: Strategy-driven Choices for America's Security,* ed. Flournoy, pp. 25-73.

- Peace and stability in the Western Hemisphere

- Contributing to economic well-being, including:
  - Vitality and productivity of the global economy
  - Security of international sea, air and space, and information lines of communication
  - Access to key markets and strategic resources.[986]

In addition, the *QDR* places a new emphasis on the security of the American homeland—promoting it "to the top priority"[987]—as the basis of security policies abroad, since US enemies

> are placing greater emphasis on the development of capabilities to threaten the United States directly in order to counter U.S. operational advantages with their own strategic effects. Therefore, the defense strategy restores the emphasis once placed on defending the United States and its land, sea, air, and space approaches. It is essential to safeguard the Nation's way of life, its political institutions, and the source of its capacity to project decisive military power overseas.[988]

Threats to the homeland result, of course, from known and observed threats such as "terrorist groups [which] possess both the motivations and capabilities to conduct devastating attacks on U.S. territory, citizens, and infrastructure", possibly with chemical, biological, radiological, nuclear or enhanced high-explosive munitions (CBRNE).[989] In addition,

> the geographic position of the United States no longer guarantees immunity from direct attack on its population, territory, and infrastructure. ... [I]t is clear that over time an increasing number of states will acquire ballistic missiles with steadily increasing effective ranges.[990]

But there are other threats as well that have not yet been observed, but can be inferred on an abductive basis. For example, "[t]he increasing dependence of societies and military forces on advanced information networks creates new vulnerabilities," which adversaries could exploit "through means such as computer network attack and directed energy weapons."[991] Similarly,

> Because many activities conducted in space are critical to America's national security and economic well being, ... potential adversaries may target U.S., allied, and commercial space assets as an asymmetric means of countering or reducing U.S.

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[986] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 2.

[987] Ibid., p. 60.

[988] Ibid., p. 14.

[989] Ibid., p. 5.

[990] Ibid., p. 3.

[991] Ibid., p. 31.

> military operational effectiveness, intelligence capabilities, economic and societal stability, and national will.[992]

Overall, the *QDR*'s assessment regarding homeland security is thus that

> Future adversaries will most certainly have a range of new means with which to threaten the United States. It is possible to identify confidently some of these means ... Others, like those used to attack the United States on September 11, 2001, may be a surprise. Defenses against known and emerging threats must be developed.[993]

With regards to the identity and type of future enemies, the Review states that

> Although the United States will not face a peer competitor in the near future, the potential exists for regional powers to develop sufficient capabilities to threaten stability in regions critical to U.S. interests.[994]

While Russia "pursues a number of policy objectives contrary to U.S. interests," it "does not pose a large-scale conventional military threat to NATO".[995] However, in a thinly veiled reference to China, the *QDR* remarks that "[t]he possibility exists that a military competitor with a formidable resource base will emerge in the region [of Asia]."[996] Unlike the *BUR*, however, the *QDR* is generally hesitant to concentrate on or even mention particular actual or potential enemies of the United States—North Korea, Iran or Iraq are not even mentioned once in the whole document.[997] Instead, the Review remarks that "a broad arc of instability that stretches from the Middle East to Northeast Asia ... contains a volatile mix of rising and declining regional powers",[998] emphasizing that "[t]he United States cannot predict with a high degree of confidence the identity of the countries or the actors that may threaten its interests and security."[999]

The Middle East remains an area of concern because of US and allied dependence on energy resources there, as well as conventional and CBRNE arsenals and support to international terrorism.[1000] The spread of crisis or insurgencies in South America is also mentioned as a possible threat to US economic and political interests.[1001] Throughout the globe, however,

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[992] Ibid., p. 45.

[993] Ibid., p. 30.

[994] Ibid., p. 4.

[995] Ibid., pp. 4-5.

[996] Ibid., p. 4.

[997] To be precise, Iraq is mentioned once, but only in relation to the historical experience of the first Gulf War.

[998] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 4.

[999] Ibid., p. 3.

[1000] Ibid., p. 4.

[1001] Ibid., p. 5.

> the inability of some states to govern their societies, safeguard their military armaments, and prevent their territories from serving as sanctuary to terrorists and criminal organizations can also pose a threat to stability,[1002]

which leads the *QDR* to diagnose an "[i]ncreasing diversity in the sources and unpredictability of the locations of conflict."[1003] Therefore, it concludes that

> The United States will not be able to develop its military forces and plans solely to confront a specific adversary in a specific geographic area. Instead, the United States could be forced to intervene in unexpected crises against opponents with a wide range of capabilities.[1004]

Uncertainty does not only relate to the identity of future adversaries, though—something that was, after all, already the case with the *BUR*, although the *QDR* extended the list of enemies that might have to be dealt with imperatively to terrorist groups and the like. What is gone is the certainty with which the *BUR* assumed aggression to take the form of an armoured invasion, and the confidence that it placed in diplomatic and technological non- and counterproliferation programs to manage the dangers from WMD. The *QDR* remarks that adversaries "could significantly enhance their capabilities by integrating widely available off-the-shelf technologies" in the areas of sensors, information processing or precision guidance into their existing weapons systems, that proliferation of WMD as well as advanced conventional munitions is "pervasive," and that

> the pace and scale of recent ballistic missile proliferation has exceeded earlier intelligence estimates and suggests these challenges may grow at a faster pace than previously expected.[1005]

In addition, new fields of military competition may rise to prominence, as "the biotechnological revolution holds the probability of increasing threats of biological warfare"[1006] and "[t]echnological advances create the potential that competitions will develop in space and cyber space."[1007]

When the *QDR* writes that "the types of military capabilities that will be used to challenge U.S. interests and U.S. military forces can be identified and understood", it thus does so only on the basis of abductive reasoning that "future adversaries will seek to avoid U.S. strengths and attack U.S. vulnerabilities".[1008] Besides striking at the US homeland itself, as discussed above, in the theatre itself

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[1002] Ibid., p. 5.

[1003] Ibid., p. 6.

[1004] Ibid., p. 6.

[1005] Ibid., pp. 6-7. See also the conclusions of the Rumsfeld Commission: Commission to Assess the Ballistic Missile Threat to the United States, *Executive Summary of the Report of the Commission to Assess the Ballistic Missile Threat to the United States.*

[1006] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 7.

[1007] Ibid., p. 7.

[1008] Ibid., p. 61.

> Future adversaries could have the means to render ineffective much of our current ability to project military power overseas. Saturation attacks with ballistic and cruise missiles could deny or delay U.S. military access to overseas bases, airfields, and ports. Advanced air defense systems could deny access to hostile airspace to all but low-observable aircraft. Military and commercial space capabilities, over-the-horizon radars, and low-observable unmanned aerial vehicles could give potential adversaries the means to conduct wide-area surveillance and track and target American forces and assets. Anti-ship cruise missiles, advanced diesel submarines, and advanced mines could threaten the ability of U.S. naval and amphibious forces to operate in littoral waters. New approaches for projecting power must be developed to meet these threats.[1009]

In addition, "U.S. military dependence on information is unprecedented and growing",[1010] creating new possibilities for adversaries who are "also likely seek to deny U.S. forces unimpeded access to space."[1011] The *QDR* also expects future enemies to exploit strategic depth, for example with space denial capabilities or mobile ballistic missile launchers deep inside their own territory.[1012] Overall, however, the Review asserts that

> In the future, it is unlikely that the United States will be able accurately to predict how successfully other states will exploit the revolution in military affairs, how rapidly potential or actual adversaries will acquire CBRNE weapons and ballistic missiles, or how competitions in space and cyber space will develop.[1013]

The *QDR* thus not only diagnoses significant uncertainty regarding the identity of future enemies, but also regarding their theory of victory:

> An assessment of the global security environment involves a great deal of uncertainty about the potential sources of military threats, the conduct of war in the future, and the form that threats and attacks against the Nation will take.[1014]

At the same time, however, all examples discussed in the *QDR* relate to technological or operational innovation on the part of the adversary—a stark contrast to the successor Review of 2006, written after years of war in Afghanistan and Iraq.[1015] The *QDR*'s disregard for insurgencies as a strategic threat is an indication that the abductive reasoning on which it largely based the analysis of present and future risk was, perhaps, not applied with sufficient rigour and open mindedness. Overall, however, the risk

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[1009] Ibid., p. 31. See also Bennett, 'Responding to Asymmetric Threats,' pp. 33-49.

[1010] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 37.

[1011] Ibid., p. 31

[1012] Ibid., p. 31.

[1013] Ibid., p. 7.

[1014] Ibid., p. 3. A strong and explicit emphasis on uncertainty became something of a hallmark of administration policy in subsequent years. For a critique, see Fitzsimmons, 'The Problem of Uncertainty in Strategic Planning,' 132-133.

[1015] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (Washington D.C.: Department of Defense, 2006), esp. pp. 20-24. See also Mackubin Thomas Owens, 'A Balanced Force Structure To Achieve a Liberal World Order,' *Orbis*, vol. 50, no. 2 (Spring 2006), pp. 307-325.

pattern laid out in the Review is thus close to the ideal case of *Un-Order* and as a result, the United States "must learn to expect" surprise.[1016]

9.1.2 Theory of Victory

In line with the stronger emphasis on the security of the US homeland, the *QDR* writes that it had developed "a strategy premised on the idea that to be effective abroad, America must be safe at home."[1017] The consequences of this decision are however more of a practical than conceptual nature, as the Review mentions that the Department must

> work through an integrated inter-agency process, which in turn will provide the means to determine force requirements and necessary resources to meet our homeland security requirements.[1018]

With regards to the overall theory of victory with which the *QDR* wants to meet strategic risks, the *QDR* does not change the general US strategy of international engagement:

> America's security role in the world is unique. It provides the basis for a network of alliances and friendships. It provides a general sense of stability and confidence, which is crucial to the economic prosperity that benefits much of the world.[1019]

More precisely, it writes that

> U.S. military strength is essential to achieving these goals [of peace, freedom and prosperity], as it assures friends and allies of an unwavering U.S. commitment to common interests.[1020]

The Review confirms that "the Nation will honor its obligations and will be a reliable security partner."[1021] Compared with the provision of regional stability itself, the role of the United States as a provider of security for its friends and allies gains a much more prominent place in the *QDR* than in the *BUR*. Rather than the expansion of democracy, freedom and rule of law in general,

> U.S. alliances, as well as its wide range of bilateral security relationships, are a centerpiece of American security. ... These security arrangements and coalitions constitute a formidable combination of actual and potential power that enables the United States and its partners to make common cause to shape the strategic landscape, protect shared interests, and promote stability.[1022]

[1016] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. iii.

[1017] Ibid., p. iii.

[1018] Ibid., p. 19.

[1019] Ibid., p. 1.

[1020] Ibid., p. 1.

[1021] Ibid., p. 11. See also the comment on NATO on pp. 14-15.

[1022] Ibid., pp. 5-6.

Instead of the three main elements of the *BUR*'s strategy (overseas presence, defeat of aggression in MRCs, and smaller-scale interventions), the *QDR* proposes four 'key goals' to guide force structure development, deployment and use:

- Assuring allies and friends of the United States' steadiness of purpose and its capability to fulfil its security commitments;
- Dissuading adversaries from undertaking programs or operations that could threaten U.S. interests or those of our allies and friends;
- Deterring aggression and coercion by deploying forward the capacity to swiftly defeat attacks and impose severe penalties for aggression on an adversary's military capability and supporting infrastructure; and
- Decisively defeating any adversary if deterrence fails.[1023]

With regards to the assurance of allies and friends, the *QDR* displays solid realism, writing that

> A primary objective of U.S. security cooperation will be to help allies and friends create favorable balances of military power in critical areas of the world to deter aggression or coercion.[1024]

Using forward deployed forces not primarily as a sign of important US interests, but to maintain military balances also provides a rough yardstick to measure sufficiency. Consequently, the *QDR* does not confirm the 100,000 man levels for Northeast Asia and Europe, but remarks that the

> new planning construct calls for maintaining *regionally tailored forces* forward stationed and deployed in Europe, Northeast Asia, the East Asian littoral, and the Middle East/Southwest Asia.[1025]

These forces are also more explicitly tied to deterrence since the *QDR* moves further from a concept of punishment to one of denial, a shift that had been recommended by a number of theoreticians and practitioners in previous years in order to reduce the likelihood and severity of deterrence failures.[1026] Forward deployed forces are thus important not only as a sign and means of threatening cost on the adversary, a role for

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[1023] Ibid., pp. iii-iv.

[1024] Ibid., p. 11. See also pp. 15, 20.

[1025] Ibid., p. 20.

[1026] See for example National Institute Study Group, *Rationale and Requirements for U.S. Nuclear Forces and Arms Control*, vol. 1 (Fairfax, VA: National Insitute for Public Policy, 2001); Payne, *Deterrence in the Second Nuclear Age*, p. 158; Colin S. Gray, 'Deterrence and Regional Conflict: Hopes, Fallacies, and 'Fixes',' *Comparative Strategy*, vol. 17, no. 1 (January-March 1998), p. 58; Robert G. Joseph, 'Nuclear Deterrence and Regional Proliferators,' *Washington Quarterly*, vol. 20, no. 3 (Summer 1997), p. 167. See also Keith B. Payne, 'Bush Administration Strategic Policy: A Reality Check,' *Journal of Strategic Studies,* vol. 28, no. 5 (October 2005), pp. 775-787.

which they are to be coupled with global strike capabilities,[1027] but also since they can provide protection to US allies and friends:

> DoD will pursue new deterrence tools that not only hold at risk an adversary's military forces and other valued assets, but also extend greater protection to allies and friends in crisis through capabilities such as missile defenses, defensive information operations, and counter-terrorist operations.[1028]

Like the *BUR*, the *QDR* also calls for the capability of forward deployed forces to defeat regional aggression with modest reinforcements, primarily in the form of global strike capabilities and self-sustainable forces from outside the theatre.[1029] But since the view of the enemy threat is more ambiguous than in the *BUR*, the operational strategy developed in the *QDR* is also less precise:

> Combat operations will be structured to eliminate enemy offensive capability across the depth of its territory, restore favorable military conditions in the region, and create acceptable political conditions for the cessation of hostilities. In addition, U.S. forces will degrade an aggressor's ability to coerce others through conventional or asymmetric means, including CBRNE weapons.[1030]

The goal would be, in general terms, to "defeat the efforts of adversaries to impose their will on the United States, its allies, or friends." However, the *QDR* also explicitly calls for "the capability at the direction of the President to impose the will of the United States and its coalition partners on any adversaries, including states or non-state entities",[1031] a more ambitious goal than the former statement.

Just as the *QDR*'s risk pattern has become noticeably more uncertain compared with the *BUR*, the confidence placed in an intricate geopolitical and military-operational theory of victory has thus diminished: The Review displays a renewed emphasis on military balances rather than 'engagement and enlargement' aimed at changing former adversaries' behaviour, prepares for deterrence failures by shifting to deterrence through denial rather than punishment, and uses much less precise formulations on operational strategy in regional conflicts than the *BUR*'s emphasis on anti-armour capabilities. Behind quite bold statements, this shift towards uncertainty and reduced confidence is can also be found in the outline of the theory of victory that the *QDR* proposes for future risk.

The QDR writes that

> Through its strategy and actions, the United States influences the nature of future military competitions, channels threats in certain directions, and complications military

[1027] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), pp. 12, 25.

[1028] Ibid., p. 25.

[1029] Ibid., p. 25.

[1030] Ibid., p. 21.

[1031] Ibid., p. 13.

> planning for potential adversaries in the future. Well targeted strategy and policy can therefore dissuade other countries from initiating future military competitions.[1032]

In order to achieve this dissuasion with regard to new enemy capabilities and ways of war,

> U.S. defense strategy must take into account the need to transform U.S. forces to address several key emerging operational challenges that are inherent in current security trends.[1033]

Transformation can thus best be understood as a theory of victory to meet this future risk,[1034] as

> The purpose of transformation is to maintain or improve U.S. military preeminence in the face of potential disproportionate discontinuous changes in the strategic environment.[1035]

Although "over time, the full promise of transformation will be realized as we divest ourselves of legacy forces",[1036] the Review also acknowledges that "prudence dictates that those legacy forces critical to DoD's ability to defeat current threats must be sustained as transformation occurs."[1037] The main challenges is thus that "DoD must prepare for future challenges over time, while meeting extant threats at any given time," and

> This tension between preparations for the future and the demands of the present requires the United States to balance the risks associated with each. Because resources are always finite, hard choices must be made...[1038]

The *QDR* goes on to explain that

> Transformation results from the exploitation of new approaches to operational concepts and capabilities, the use of old and new technologies, and new forms of organization

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[1032] Ibid., p. 12.

[1033] Ibid., p. 7. See also Kugler, 'Dissuasion as a Strategic Concept,' pp. 7-8.

[1034] The *QDR* however also sees transformation as having an indirect impact on the way US forces can reduce present risk, as the enemy will be uncertain about the extent to which new capabilities have already been acquired: "Moreover, field exercises and experiments that enable the U.S. military to create and maintain options for a variety of emerging capabilities greatly complicate the planning of would-be adversaries. By enabling the creation of a range of capabilities and warfighting options, field exercises and experimentation can compel future competitors into an unenviable choice. They can seek to develop responses to most or all of the U.S. capabilities and options and consequently stretch their limited resources thin, or they can choose the high-risk option of focusing their efforts on offsetting only one or a few of the new warfighting options, leaving themselves vulnerable to the others. When confronted with this dilemma, potential adversaries may find themselves dissuaded from entering into a military competition in the first place." Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 36.

[1035] Ibid., p. 30.

[1036] Ibid., p. v.

[1037] Ibid., p. 47.

[1038] Ibid., p. 13. See also pp. 57, 62.

> that more effectively anticipate new or still emerging strategic and operational challenges and opportunities and that render previous methods of conducting war obsolete or subordinate. Transformation can involve fundamental change in the form of military operations, as well as a potential change in their scale. It can encompass the displacement of one form of war with another, such as fundamental change in the ways war is waged in the air, on land and at sea. It can also involve the emergence of new kinds of war, such as armed conflict in new dimensions of the battlespace.[1039]

Transformation as a concept is an obvious brainchild[1040] of the mid-to-late 1990s "American Revolution in Military Affairs". The *QDR* is relatively mute with regards to specific new systems that would be involved in transformation, but it states that "[i]nformation technology will provide a key foundation for the effort to transform U.S. armed forces for the 21st century",[1041] and that

> new information and communications technologies hold promise for networking highly distributed joint and combined forces and for ensuring that such forces have better situational awareness ... than in the past.[1042]

As it is designed to meet and possibly even forestall or 'dissuade'[1043] future new enemy challenges,[1044] the appropriateness of transformation as a theory of victory obviously stands or falls with the quality of the (abductive) reasoning that postulated the future risks it is designed to meet.

But since transformation involves changing core competencies of warfare[1045] even if it is limited to the conventional state-on-state battlefield, information about practical aspects has yet to be gained—something the *QDR* acknowledges when it writes that transformation "entails ... experimenting with the development of new military capabilities."[1046] Therefore,

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[1039] Ibid., p. 29.

[1040] Some might say twin, or the same in disguise.

[1041] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 45.

[1042] Ibid., p. 31.

[1043] One additional problem is that, as with deterrence, only failure but never success of dissuasion is obvious. This does, however, mean that if e.g. missile defence is successful in this respect, it will be a defence against largely non-existent threat. Peppi DeBiaso, 'Proliferation, Missile Defense and the Conduct of Modern War,' *Comparative Strategy*, vol. 25, no. 6 (July-September 2006), pp. 164-165.

[1044] Unlike earlier writers on the RMA had done in the mid- to late 1990s (see, for example, Bill Owens, 'The American Revolution in Military Affairs,' *Joint Forces Quarterly*, no. 10 (Winter 1995/1996), pp. 37-38), the *QDR* sees transformation as something that is not a discretionary American initiative, but a necessary (anticipatory) reaction to enemy programs. It thus combines what Steven Metz called the 'Transformation Approach' and the 'Counter-Asymmetry Strategy': Steven Metz, *American Strategy: Issues and Alternatives for the Quadrennial Defense Review Planning* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2000), pp. 66-70, 75-81.

[1045] Hundley, *Past Revolutions, Future Transformations*, p. 9. See also Section 2.3.5.

[1046] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. iv.

> To identify the best available solutions to emerging operational challenges, the defense strategy will employ military field exercises and experiments. ... These operations reduce uncertainty about the future conflict environment and future capabilities.[1047]

In addition, the Review acknowledges that innovation in military technology cannot be directed through governmental programs any more in the way it used to be in previous decades:

> During the Cold War, U.S. government programs were a primary impetus for research into new technologies, particularly in areas such as computers and materials. Today and well into the foreseeable future, however, DoD will rely on the private sector to provide much of the leadership in developing new technologies. Thus, the Department has embarked on an effort (a) to turn to private enterprise for new ways to move ideas from the laboratory to the operating forces, (b) to tap the results of innovations developed in the private sector, and (c) to blend government and private research where appropriate.[1048]

The *QDR* thus does not profess to present a clear picture of what transformation would actually look like—uncertainty affects this theory of victory for future risks to a significant degree, in addition to the more fundamental uncertainty about the validity of the technology-focused pattern of future risk. Overall, and perhaps contrary to established popular wisdom, the *QDR* displays a noticeably qualified confidence in the theories of victory for present and future risk, which are much less specific than those in the *BUR*, and emphasize the need to adapt to new information.[1049]

9.1.3 Codification of Requirements and Transformation

In order to come to terms with the difficulties in defining requirements for meeting a threat that is uncertain in terms of the identity and theory of victory of future adversaries, the *QDR* shifts to a 'capabilities-based approach', which "focuses more on how an adversary might fight rather than specifically whom the adversary might be or where a war might occur."[1050] Capabilities-based planning is thus, at least partly, based on the abductive inference of future enemy capabilities discussed in the previous two sections.[1051] From these considerations, it derives requirements for US force planning in the form of US capabilities to overcome the enemy's capabilities:

[1047] Ibid., p. 35. See also: Defense Science Board, *The Role and Status of DoD Red Teaming Activities.*

[1048] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 41.

[1049] Unfortunately, this very qualified confidence in the US military's ability to overcome high-technology enemy opposition did not extend to its ability to deal with other, more mundane tasks such as occupation duties. This is, however, a question of intelligent employment rather than structuring of forces, or at most one of a risk pattern that, arguably, is skewed towards the high-technology end of the threat spectrum.

[1050] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. iv.

[1051] In practice—a paradox only at first glace—the Pentagon brought the input from combatant commanders into the requirements process forward, from demands for certain platforms, to demands for certain capabilities. See Senior Defense Officials, *Defense Department Background Briefing*, 5 March 2004, <www.defense.gov/transcripts/2004/tr20040305-0507.html> (12 August 2005). For a discussion of the difficulty of moving away from point scenarios, see Davis, *Analytic Architecture for Capabilities-Based Planning, Mission-System Analysis, and Transformation*, pp. 20-26.

> A capabilities-based model ... requires identifying capabilities that U.S. military forces will need to deter and defeat adversaries who will rely on surprise, deception, and asymmetric warfare to achieve their objectives. Moving to a capabilities-based force also requires the United States to focus on emerging opportunities that certain capabilities, including advanced remote sensing, long-range precision strike, transformed maneuver and expeditionary forces and systems, to overcome anti-access and area denial threats, can confer on the U.S. military over time.[1052]

While the *QDR* concentrates its discussion on US capabilities, these derive their strategic value from the fact that they make it possible to achieve certain tasks. Formulating requirements in the form of capabilities independent of specific adversaries is thus equivalent to defining tasks to be achieved that, at a later stage, can be combined into a coherent theory of victory—the Review writes that capabilities-based planning was to

> require planners to define the military objectives associated with defeating aggression or coercion in a variety of potential scenarios in addition to conventional cross-border invasions.[1053]

In line with *Task-based Planning*, the *QDR* develops the tasks to be achieved from basic considerations regarding the projection of kinetic power and military forces:

> The defense strategy rests on the assumption that U.S. forces have the ability to project power worldwide. The United States must retain the capability to send well-armed and logistically supported forces to critical points around the globe, even in the face of enemy opposition, or to locations where the support infrastructure is lacking or has collapsed. For U.S. forces to gain the advantage in such situations, they must have the ability to arrive quickly at non-traditional points of debarkation to mass fire against an alerted enemy and to mask their own movements to deceive the enemy and bypass its defenses.[1054]

It remarks that these tasks are particularly challenging in the Asian theatre with its vast distances and low US basing density.[1055] Future operations would be joint and combined, based on interoperable systems as well as a practice of peacetime training, and also involve other federal and state agencies, as well as civilian elements.[1056]

Because the risk pattern involves a significant degree of uncertainty, strategic warning cannot be relied upon to signal the need for new capabilities—the *QDR* remarks that adapting quickly to surprise "must therefore be a condition of planning."[1057] A practical consequence of this condition is that it is not easily possible to define specific points in time when transformational capabilities to meet future risk are required—transformation is not about planning for a future mobilization, or about having to do something in the

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[1052] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), pp. 10-14.

[1053] Ibid., pp. 17-18.

[1054] Ibid., p. 43. See also Joint Chiefs of Staff, *The National Military Strategy of the United States of America*, pp. 16-20.

[1055] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 4.

[1056] Ibid., pp. 15, 46.

[1057] Ibid., p. iii.

future that would be different from what the Unite States hoped to be able to do in the present already.[1058] Therefore, requirements related to transformation are linked to the same tasks that underlie the theory of victory for present risks. In the words of the *QDR*,

> Six critical operational goals provide the focus for DoD's transformation efforts:
>
> - Protecting critical bases of operations (U.S. homeland, forces abroad, allies, and friends) and defeating CBRNE weapons and their means of delivery;
> - Assuring information systems in the face of attack and conducting effective information operations;
> - Projecting and sustaining U.S. forces in distant anti-access or area-denial environments and defeating anti-access and area-denial threats;
> - Denying enemies sanctuary by providing persistent surveillance, tracking, and rapid engagement with high-volume precision strike, through a combination of complementary air and ground capabilities, against critical mobile and fixed targets at various ranges and in all weather and terrains;
> - Enhancing the capability and survivability of space systems and supporting infrastructure; and
> - Leveraging information technology and innovative concepts to develop an interoperable, joint C4ISR architecture and capability that includes a tailorable joint operational picture.[1059]

However, one of the greater weaknesses of the *QDR* is that the geostrategic situation from which these transformational challenges are derived is not used to define them in further quantitative or qualitative detail, or to assess the coherence of the underlying considerations.[1060] Beyond the specific examples it gives, the Review is largely moot on how to decide whether a possible, abductively defined threat warrants attention or not.

With regards to concurrency considerations, the *QDR* begins to move away from the formal focus on two MRCs, announcing a planning framework that "for the first time

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[1058] Although it is clear in some circumstances that new capabilities will only be required in the future—such as, for example, with regards to missile intercept capabilities for Iranian ICBM. See Henry A. Obering, *Media Teleconference*, 25 January 2007.

[1059] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 30. Note that these tasks do not form a theory of victory in a way that, for example, the *BUR*'s four phases of US operations did (see Sections 8.1.2 and 8.1.3).

[1060] There is, therefore, merit in Andrew Krepinevich's suggestion to revisit the use of colour coded warplans not as operational contingency planning (which would lead to a defence planning concept of Multi-threat Planning), but in order to appreciate what future conflict may entail. Andrew F. Krepinevich, *The Quadrennial Defense Review: Rethinking the US Military Posture* (Washington D.C.: Center for Strategic and Budgetary Assessments, 2005), pp. 56-77.

takes into account the number and nature of the tasks actually assigned to the Armed Forces."[1061] The new

> approach shifts the focus of U.S. force planning from optimizing for conflicts in two particular regions—Northeast and Southwest Asia—to building a portfolio of capabilities that is robust across the spectrum of possible force requirements, both functional and geographical.[1062]

However, the Review can of course not avoid making concurrency judgements. Instead of the two MRC standard, the *QDR* settles on what may be called a 1-4-2-1 structure: US forces are required to be able to defend the US homeland and conduct forward deterrence and deployment operations in four regions (Europe, Northeast Asia, the East Asian littoral, and the Middle East/Southwest Asia).[1063] While "U.S. forces will remain capable of swiftly defeating attacks against U.S. allies and friends in any two theaters of operation in overlapping timeframes", the Review scaled back ambitions somewhat as

> U.S. forces will be capable of decisively defeating an adversary in one of the two theaters in which U.S. forces are conducting major combat operations by imposing America's will and removing any future threat it could pose. This capability will include the ability to occupy territory or set the conditions for a regime change if so directed.[1064]

The *QDR* also acknowledges that smaller-scale operations place additional demands on the force structure, and that they cannot always be easily terminated when more demanding conflicts arise. Therefore,

> DoD will explicitly plan to provide a rotational base—a larger base of forces from which to provide forward-deployed forces—to support long-standing contingency commitments in the critical areas of interest. These long-standing commitments will, in effect, become part of the U.S. forward deterrent posture.[1065]

As the number and type of formal missions with force structure relevance has expanded, the *QDR* also demands that the measurement of operational risk, for which the *BUR* had used the two MRC scenario, should take a wider range of contingencies into account.[1066] Finally, it accounts for the fact that transformation may place additional

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[1061] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 18.

[1062] Ibid., p. 17.

[1063] Ibid., pp. 18-20.

[1064] Ibid., p. 21. Although, as Michael O'Hanlon pointed out, the threat from both Iraq and North Korea in conventional terms seemed more hollow at the beginning of the 21st century than in 1993. Michael O'Hanlon, 'Rethinking Two-War Strategies,' in *Revising the Two MTW Force Shaping Paradigm*, ed. Metz, pp. 81-92.

[1065] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 21. Overall, the new standard is thus closer to the one-and-two-half standard than the *BUR*'s two MRCs. See Hans Binnendijk and Richard L. Kugler, 'Revising the Two-Major War Standard,' *Strategic Forum*, no. 179 (Washington D.C.: National Defense University, 2001). For a discussion of the building block concept in more sophisticated frameworks than the two MRC standard, see Michèle A. Flournoy and Kenneth F. McKenzie, 'Sizing Conventional Forces: Criteria and Methodology,' in *QDR 2001: Strategy-driven Choices for America's Security,* ed. Flournoy, pp. 167-191.

[1066] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), pp. 60-61.

demands on the force as units are re-organized or engaged in experimentation,[1067] for which up to 5% of US-based forces are made available.[1068]

As mentioned in the previous section, the way in which transformation would impact on strategic cause-effect relationships was uncertain, and new information had to be generated in an adaptive approach from experimentation or interaction with the enemy.[1069] The *QDR* thus explicitly states that transformation "requires a substantial investment in explicit searches for new and improved capabilities", [1070] where "wargames and simulations serve as a filter to enhance the focus and value of field exercises."[1071] For example,

> with respect to the challenge of projecting power in an anti-access environment, field exercises and experiments will enable the military to identify promising operational concepts for deploying forces into theater and conducting extended-range precision strikes against mobile targets. Further, these exercises and experiments will help to determine if secure access to forward bases is possible and to identify ways to sustain operations for a period sufficient to achieve U.S. objectives. They will also assist the United States in determining which new systems and capabilities will be required, which existing systems and capabilities should be sustained, and what combination of transformational and legacy systems should be created.[1072]

In the end,

> The findings of this program of field exercises and experiments will feed back directly into the process for determining systems, doctrine, and force structure requirements.[1073]

Therefore, the codification of the *QDR* is left relatively vague in order to accommodate new information. It "plans to reduce the time required to introduce new concepts and systems into the fielded force."[1074] "Over time, the full implications of the *QDR* will emerge", the Review writes, as the "ability of the force to field transformed capabilities ... will be more accurately assessed as joint and Service transformation roadmaps are developed."[1075]

[1067] Statement of the Chairman of the Joint Chiefs of Staff, in Ibid., pp. 68-69.

[1068] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 37.

[1069] Admiral Gehman, initiator of the Joint Experimentation Directorate, mentions that early in the process of joint experimentation (before the *QDR*), there was a "strong pressure for short term results." Harold W. Gehman, and James M. Dubik, 'Military Transformation and Joint Experimentation: Two Views from Above,' *Defense Horizons*, no. 46 (Washington D.C.: National Defense University, 2004), p. 2.

[1070] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 62.

[1071] Ibid., p. 36.

[1072] Ibid., p. 36.

[1073] Ibid., p. 37.

[1074] Ibid., p. 63. Following the *QDR*, the interval in which contingency plans were reviewed was also reduced from two to one year. Richard Meinhart, *Strategic Planning by the Chairmen, Joint Chiefs of Staff, 1990 to 2005* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2006), p. 16.

[1075] Statement of the Chairman of the Joint Chiefs of Staff, in Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 70.

9.1.4 Force Structure Concept

Since both the risk pattern and theory of victory showed (yet unresolved) significant uncertainties, and since the codification of requirements highlighted the need to gain additional information, it is not surprising that the *QDR*'s comments regarding the future US force structure are much less final than those of the *BUR*.[1076] They roughly fall into three broad categories: First, regarding the revitalisation of current force structure; second, the introduction of additional geographical and configurational flexibility; [1077] and third, hedges of (abductively defined) future risks. As the implementation of transformation straddles both present and future risks, it relates to both the second and third area. New 'transformational capabilities' that the review calls for are directly related to the codification of requirements in the form of tasks, as discussed in the previous section. Overall, the *QDR*'s comments thus only relate to the direction, rather than a final goal of force structure development.[1078]

The *QDR* writes that

> The current force structure ... was assessed across several combinations of scenarios on the basis of the new defense strategy and force sizing construct, and the capabilities of this force were judged as presenting moderate operational risk, although certain combinations of warfighting and smaller-scale contingency scenarios present high risk.[1079]

It does not however yet decide on major changes—instead, it plans that as the "transformation effort matures ... DoD will explore additional opportunities to restructure and reorganize the Armed Forces."[1080] In the meantime, existing forces are recapitalised, to a limited degree, with selective upgrades to the Abrams tank, B-1 bomber, ship self-defence systems and amphibious assault vehicles. [1081] Counter-terrorism, force protection and domestic nuclear, biological and chemical defence capabilities are also improved.[1082]

The Review aims to increase US capabilities to gain information about actual and potential enemies, writing that "[i]nvestments in intelligence, surveillance, and

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[1076] Another contributing factor was probably the relatively short time in which the *QDR* was put together. See Government Accounting Office, *Quadrennial Defense Review: Future Reviews Can Benefit From Better Analysis and Changes in Timing and Scope,* GAO-03-13 (Washington D.C.: Government Accounting Office, 2003).

[1077] The *QDR* writes of "the need to provide over time a richer set of military options across the operational spectrum than is available today and to ensure that U.S. forces have the means to adapt in time to surprise." Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 17.

[1078] In his comments on the *QDR*, the Chairman of the Joint Chiefs of Staff remarked, for example, that significant work especially in the areas of reserves and logistics had to be undertaken to ascertain the force structure implications of the Review. The Review also remarks that major studies on air- and sealift and prepositioning in the previous financial year did not yet take the new strategy into account. Ibid., pp. 61, 69.

[1079] Ibid., p. 22.

[1080] Ibid., p. 23.

[1081] Ibid., p. 47.

[1082] Ibid., p. 42.

reconnaissance (ISR) initiatives must be bolstered."[1083] The procurement of UAV is accelerated and commercial imaging capabilities are integrated into the US ISR system. The overall system is made more robust by overlapping capabilities through, for example, the complementation of airborne radar systems with future space-based ones.[1084]

The *QDR* plans to enhance the geographical flexibility of US force in three main ways:

> - Develop a basing system that provides greater flexibility for U.S. forces in critical areas of the world, placing emphasis on additional bases and stations beyond Western Europe and Northeast Asia.
>
> - Provide temporary access to facilities in foreign countries that enable U.S. forces to conduct training and exercises in the absence of permanent ranges and bases. ...
>
> - Provide sufficient mobility, including airlift, sealift, prepositioning, basing infrastructure, alternative points of debarkation, and new logistical concepts of operations, to conduct expeditionary operations in distant theaters against adversaries armed with weapons of mass destruction and other means to deny access to U.S. forces.[1085]

The force structure implications of the latter point can, for example, be demonstrated by the Maritime Prepositioning Force (Future) or MPF(F) program. Existing prepositioning ships, including those acquired after the *BUR*, require harbour facilities to offload and must, because of the tight storing of equipment, be completely emptied even if only select items are required. MPF(F) ships would have the ability to deliver materiel over the shore through helicopters and amphibious landing craft. In addition, it will be possible to move (and service) equipment aboard, so that tailored force packages can be created.[1086] Like the *BUR*, the *QDR* again highlights the role of long-range bombers and special operations forces based in the continental United States to "provide an immediately employable supplement to forward forces".[1087] In addition, the replacement of nuclear Trident systems with cruise missiles on four submarines provides a strike capability that does not depend on aircraft entering hostile airspace.[1088] Subsequent to the *QDR*, the National Military Strategy also placed special emphasis on what it called geographic "agility".[1089]

The Review also places additional emphasis on configurational flexibility:

[1083] Ibid., p. 44.

[1084] Ibid., p. 39.

[1085] Ibid., p. 26. For a discussion of the need to review US overseas basing in the context of the *QDR*, see Roger Cliff, Sam J. Tangredi, and Christine E. Wormuth, 'The Future of U.S. Overseas Presence,' in *QDR 2001: Strategy-driven Choices for America's Security,* ed. Flournoy, pp. 235-262.

[1086] See, for example, Congressional Budget Office, *The Future of the Navy's Amphibious and Marine Prepositioning Forces* (Washington DC: Congress of the United States, 2004); 'Maritime Prepositioning Force (Future) MPF(F),' *www.GlobalSecurity.org* <http://www.globalsecurity.org/military/systems/ship/mpf-f.htm> (25 February 2007).

[1087] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 26.

[1088] Ibid., p. 44.

[1089] Joint Chiefs of Staff, *The National Military Strategy of the United States of America*, p. 7.

> DoD must develop the ability to integrate combat organizations with forces capable of responding rapidly to events that occur with little or no warning. These joint forces must be scalable and task-organized into modular units to allow the combatant commanders to draw on the appropriate forces to deter or defeat an adversary.[1090]

Several initiatives that contribute to this goal are mentioned throughout the *QDR*.[1091] The army, for example, was to accelerate its reorganization into Brigade Combat Teams,[1092] which with their increased integrated support elements make it easier to deploy forces of a smaller size than a division.[1093] Command, control and communications systems were to be developed in a way that forces could "immediately 'plug' into the joint battlefield operating systems (command and control, intelligence, fire support, logistics, etc.)", which should be joint, combined and extend to other agencies. Standing Joint Task Force Headquarters with standardized command, control and ISR architecture would be established with each of the regional combatant commands.[1094] In addition, the existing Global Naval Forces Presence Policy and the Global Military Force Policy, used to manage low-density high-demand assets, were to be expanded into a Joint Presence Policy,[1095] which would cover most conventional units and thus facilitate the global generation of forces to meet regional commander's requests.

With regards to transformation, the *QDR* discusses new, task-derived capabilities as additions to the existing base force:

> Creating substantial margins of advantage across key functional areas of military competition (e.g., power projection, space, and information) will require developing and sustaining a portfolio of key military capabilities to prevail over current challenges and to hedge against and dissuade future threats. Building upon the current superiority of U.S. conventional forces, this portfolio will include capabilities for conducting information operations, ensuring U.S. access to distant theaters, defending against threats to the United States and allied territory, and protecting U.S. assets in space.[1096]

But since these capabilities relate to tasks required for meeting threats on which relatively little precise information is available, the Review does not contain definite

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[1090] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 32.

[1091] Richard Kugler mentions that flexibility and modularity are two main tenants of the 2001 *QDR*. See Kugler, *Policy Analysis in National Security Affairs: New Methods For a New Era*, pp. 268-269.

[1092] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 27.

[1093] There is however criticism that the new brigades, with two four-company maneuvre battalions each, are too small and without sufficient reserves, and that in addition flexibility is lost if divisions loose much of their own firepower. See Kugler, *Policy Analysis in National Security Affairs: New Methods For a New Era*, pp. 337-339.

[1094] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), pp. 33-34, 40, 46.

[1095] Ibid., pp. 35, 59. In 2004, Joint Forces Command was designated Joint Force Provider. It is now responsible for developing a sourcing solution for most of the requests by regional commanders for conventional forces, replacing a decentralized and more informal system to exchange forces between force providing commands (Joint, European and Pacific Command). See Michael Ferriter and Jay Burdon, 'The Success of Global Force Management and Joint Force Providing,' *Joint Forces Quarterly*, no. 44 (1st Quarter 2007), pp. 45-46.

[1096] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 15.

guidance regarding timelines or the quantity of systems or capability to be acquired. For example, it writes that US space surveillance systems should "evolve ... from a cataloguing and tracking capability to a system providing space situational awareness",[1097] without however making any clear statement as to the space control capability such a program might lead to. The *QDR*'s approach also had significant consequences for the transition from the Ballistic Missile Defense Organisation to MDA. The former managed an R&D program that was to lead into the procurement of a predefined missile defence architecture. The latter, however, is to provide operational capability within the scope of an R&D program conducted through two-year blocks, without a pre-determined end state. Traditional procurement processes are only used for elements that prove sufficiently mature over time.[1098]

In addition, the need for a program of experiments and field exercises also causes specific resource requirements and programs mentioned in the *QDR*. The Joint Forces Command would possibly establish a space test range as well as a Joint National Training Centre and a joint opposing force for major exercises.[1099] One major joint transformation exercise is planned every other year, with Service exercises in the intervening years.[1100] In general, the need to test new capabilities requires a program to modernize existing ranges and manage encroachment of urban development.[1101]

In summary, the risk pattern in the 2001 *QDR* showed significant similarities with *Un-Order,* as the Review did not place high confidence in its ability to correctly anticipate either the identity of enemies, or their theories of victory. The theory of victory was thus not specified in much detail, and emphasized the need to be adaptive and generate new knowledge, through experimentation in particular. Requirements were abductively inferred and concentrated on giving US forces the ability to fulfil basic tasks or "operational goals". Force structure changes are limited, but emphasize the need for flexibility. The Review is largely silent on industry policy considerations, as well as desired general traits of new platforms beyond an emphasis on networked warfare. Overall, however, the *QDR* demonstrates most of the defining traits of *Rearmament Planning.*

9.2 New Zealand—The 1991 *Defence of New Zealand* White Paper

New Zealand tried to apply a methodology not unlike that of the 1987 *Defence of Australia* White Paper in its own, 1987 *Defence of New Zealand* document.[1102] However, its defence policy did not develop a similarly consistent focus after Vietnam, and came to be dominated by the implications of the nuclear ship dispute and the

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[1097] Ibid., p. 45.

[1098] This structure of the program is still used by the time of writing. The reasoning behind it was outlined in some detail at the time in, for example, Ronald T. Kadish, *Testimony on the FY 03 Missile Defense Budget before the Senate Appropriations Committee Defense Subcommittee*, 17 April 2002. The *QDR* only hinted at the details of these changes in Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), p. 42.

[1099] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2001), pp. 36-37, 62.

[1100] Ibid., p. 37.

[1101] Ibid., p. 41.

[1102] New Zealand Government, *Defence of New Zealand: Review of Defence Policy* (Wellington: V.R. Ward Government Printer, 1987).

suspension of US cooperation.[1103] In this context, the new National centre-right government published a defence White Paper in 1991 that sought to arrest what may be called "strategic drift".[1104] It tried to reconcile, in the context of the end of the Cold War, the country's traditional internationalist outlook with the recently suspended US alliance relations and a shrinking defence resource base.[1105] In doing so, the White Paper settled on a definition of defence interests and a way of meeting them that, in combination, resulted in a risk pattern very close to the ideal case of *Un-Order*. Consequently, the defence planning framework of the 1991 White Paper bore remarkable resemblance, in the overall context of New Zealand's strategic circumstances, to the concept of *Task-based Planning*.[1106]

9.2.1 Risks à "tous azimuths"

Not surprisingly given New Zealand's benign strategic location, the White Paper judges that "there are no direct threats to our security."[1107] The country is "distant from the major sources of international conflict,"[1108] only very few states possess the significant capabilities necessary to mount a direct threat,[1109] and it "is reasonable to assume that there would be a considerable warning time for an event of such magnitude"[1110] as an armed invasion. In a similar vein as Australia did in the 1987 *Defence of Australia* White Paper, the New Zealand 1991 Paper notes that

> There are a number of ways in which pressure could be brought to bear on New Zealand short of direct attack. ... A threatening presence could be demonstrated by air or naval patrols in our waters, or terrorist attacks or covert raids could be mounted against New Zealand targets. Our geography and economy make us especially vulnerable to submarine or mining activity around our harbours and shipping lanes.[1111]

But unlike in the case of Australia, it was difficult to relate these possibilities of direct threat to regional capabilities and local strategic geography. Soviet and Libyan activity were clearly on the decline and the Pacific island states

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[1103] See Ian McGibbon, 'New Zealand Defence Policy from Vietnam to the Gulf,' in *New Zealand in World Affairs III 1972-1990*, ed. Bruce Brown (Wellington: Victoria University Press, 1999), pp. 111-142.

[1104] Robert Ayson, 'Australasian Security Policy: Old Agenda Divergence, New Agenda Convergence?', in *Australian Security After 9/11*, eds. Derek McDougall and Peter Shearman (London: Ashgate, 2006), p. 165.

[1105] For a discussion of the relationship between defence reviews and defence white papers in New Zealand, see James Rolfe, *Defending New Zealand: A Study of Structures, Processes and Relationships* (Wellington: Institute of Policy Studies, Victoria University, 1993), pp. 61-76.

[1106] A very similar concept was proposed, but never adopted, for Australia: See Alan Hinge, *Australian Defence Preparedness* (Canberra: Australian Defence Studies Centre, 2000).

[1107] New Zealand Ministry of Defence and New Zealand Defence Force, *The Defence of New Zealand 1991* (Wellington: New Zealand Government, 1991), p. 28.

[1108] Ibid., p. 17.

[1109] Ibid., pp. 18, 28.

[1110] Ibid., p. 58.

[1111] Ibid., p. 59.

> lie at considerable distances from another, are of little strategic interest to larger powers, have few resources and limited infrastructures of airports, harbours and resupply stocks.[1112]

With regards to major direct threats to New Zealand, the country thus relies on strategic warning: "In the South Pacific as in New Zealand, no direct external threat can be seen for the foreseeable future,"[1113] and "[m]ajor threats to New Zealand's security interests are more likely to arise beyond the South Pacific."[1114]

However, the White Paper acknowledges that New Zealand has explicit defence commitments to the Cook Islands, Niue and Tokelau, and implicit ones to Western Samoa.[1115] It states that the "relative proximity of the island states to New Zealand means that their security and stability is of particular concern to us."[1116] New Zealand's regional defence interests also lie in the security of Australia, which shields the country from threats emanating in mainland as well as archipelagic Asia. Therefore, "[i]t has always been assumed that in such circumstances [of threats to the either country], both nations would act in concert."[1117]

The White Paper states that "[d]espite or perhaps because of our geographical remoteness New Zealand pursues a large number of diverse and distant interests."[1118] It explicitly mentions the free passage of international shipping, which directly relates to New Zealand's security, as the country's economy heavily depends on international trade, has supply lines of a significant length, and strongly depends on access to overseas supplies in the event of conflict.[1119] The White Paper therefore judges that

> a major disruption in the Pacific would threaten the fabric of New Zealand life as surely as any direct threat. ... as global citizens and traders, international peace and stability must be our concern.[1120]

This meshes with the country's internationalist tradition, as New Zealanders "have traditionally aimed to be good international citizens and have consciously taken the larger view."[1121]

In this global regard, New Zealand has not only to deal with the general condition that "military force remains for the foreseeable future the final arbiter of relations among states."[1122] The preceding years had seen significant regional and global developments,

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[1112] Ibid., p. 21.

[1113] Ibid., p. 51.

[1114] Ibid., p. 21.

[1115] Ibid., p. 33.

[1116] Ibid., p. 20.

[1117] Ibid., p. 19.

[1118] Ibid., p. 21.

[1119] Ibid., pp. 18, 33.

[1120] Ibid., p. 28.

[1121] Ibid., p. 22.

[1122] Ibid., p. 17.

so that the White Paper fell "in a time of greater fluidity in international relationships."[1123] Since its predecessor in 1987, "in the South Pacific internal security issues have emerged as a major concern," and New Zealand had participated the first Gulf War against Iraq.[1124] Although "it is still too early to predict the military consequences of the end of the Cold War,"[1125] it would in time lead to "the emergence of other major powers" in Asia.[1126] Continued and unabated American engagement could not be taken for granted,[1127] but "no comprehensive framework has developed for managing" security relationships in the Asia-Pacific.[1128] Consequently,

> "[p]erceptions of a declining American security role ... may encourage some of the larger regional states to experiment with more ambitious strategic agendas of their own,"[1129]

at a time when "increasingly the proliferation of advanced conventional if not nuclear weapons will endow small states with disproportionate military influence." Overall, "the possibility of regional conflicts may have increased,"[1130] and "[o]pportunities will emerge for other states to establish local hegemonies."[1131]

The White Paper does not include a prioritisation between risks close or far afield. It writes that "the threat of invasion, a lodgement or even a serious raid, while never to be overlooked, is not the main determinant of a New Zealand defence strategy."[1132] Unlike its 1987 predecessor, the 1991 White Paper also rejects a primary focus on threats and interests in the South Pacific region as both deleterious to the professionalism of the New Zealand Defence Force (NZDF), and not warranted given the risks to New Zealand interests elsewhere.[1133] These "are likely if anything to increase the importance of strategic stability in the region and of our need to make an appropriate contribution,"[1134] especially since "[t]he Americans will look to the Asia/Pacific states to do more to support the region's continued stability."[1135]

[1123] Ibid., p. 22. Gerald Hensley wrote at the time that "[w]e now face doubts, rather than threats." Gerald Hensley, 'New Zealand's defence in the 1990s,' *New Zealand International Review*, vol. 17, no. 3 (May/June 1992), p. 3.

[1124] New Zealand Ministry of Defence and New Zealand Defence Force, *The Defence of New Zealand 1991*, p. 14.

[1125] Ibid., p. 23.

[1126] Ibid., p. 14.

[1127] Ibid., p. 23.

[1128] Ibid., p. 25.

[1129] Ibid., p. 26.

[1130] Ibid., p. 23.

[1131] Ibid., p. 24.

[1132] Ibid., p. 48.

[1133] Ibid., pp. 27, 50.

[1134] Ibid., p. 16.

[1135] Ibid., p. 26.

Thus, no strategic risk stood out overall, as the severity of actual and conceivable threats to New Zealand was inversely correlated with the intensity of New Zealand's interests involved.[1136] The White Paper acknowledged as much when it states that

> Defence planning has therefore been less concerned with New Zealand's security *needs* ... than with New Zealand's security *interests*. ... They are both broad and general, more diffuse and therefore more difficult to grasp than direct threats.[1137]

These security interests to be safeguarded included the protection of territory and sovereignty, of off-shore resources, nationals, and economic interests, as well as constitutional obligations and other regional ties, treaty and other security arrangements, shared values, and, in general, an orderly conduct of world affairs.[1138] "The need to support our defence interests, including those shared with Australia and other friends, is what in practice shapes our policy,"[1139] the White Paper writes.

> New Zealand defence policy has to cover both an extensive home environment where the threat is low but the tasks demanding and an even more diffuse need to support our economic and other interests at great distances.[1140]

In addition, "[t]hese security interests are not only increasingly diverse, but they are developing within an international setting that is changing rapidly."[1141] Overall, the 1991 White Paper thus does not so much establish a clear pattern of strategic risks to be treated than concludes the absence of a pattern as such—in the words of Gerald Hensley, New Zealand's strategy was to be "tous azimuths".[1142] It does not, however, leave the NZDF without guidance as to what type of risks to treat—unlike the other example cases discussed so far, however, this guidance is contained in the theory of victory as much as in the risk pattern itself.

9.2.2 Theory of Victory

Given the variety of defence interests and threats that the White Paper sees as relevant to New Zealand's defence effort, it is not surprising that it does not define only one, but several theories of victory for different types of risk. Not unlike Australia's approach to the defence of the continent and global risks, respectively, New Zealand distinguishes two main ways of reducing strategic risks (with that applied to the South Pacific falling roughly in between):

[1136] Cathy Downes points out that the Australian and New Zealand militaries are peculiar in that new 'internationalist' missions have been added to the more traditional task of territorial defence and alliance support, but not replaced them (yet) as in many other countries. Downes, 'Australia and New Zealand: Contingent and Concordant Militaries,' p. 189.

[1137] New Zealand Ministry of Defence and New Zealand Defence Force, *The Defence of New Zealand 1991*, p. 28; see also pp. 16, 18, 61.

[1138] Ibid., pp. 31-36.

[1139] Ibid., p. 49.

[1140] Ibid., p. 16.

[1141] Ibid., p. 28.

[1142] Gerald Hensley, *The Development of the 1991 Defence White Paper*, I/DEF/MOD/29B, 23 June 1992, p. 5. This was perhaps a somewhat unlucky choice of words, as not even in the French case it was clear what this should mean in practice.

> New Zealand has the prime responsibility for direct national tasks ... . [But t]here are also broader security concerns which we share with other countries ... These concerns can only be pursued by collective effort in which New Zealand's aims are meshed with those of other and for the most part larger countries.[1143]

While the White Paper states that "[t]he core of this task [of protecting territorial integrity and sovereignty] ... is the retention by New Zealand of a minimum capability for offensive action,"[1144] the unlikelihood and remoteness in time of any major threat to New Zealand means that the NZDF only has to take limited precautionary measures, such as in the areas of mine countermeasures and anti-submarine surveillance.[1145] Even the retention of the air combat capability is not judged to be warranted on the basis of the defence of New Zealand alone.[1146] Should a threat emerge, the White Paper (implicitly) relies on allied assistance coming fore: "New Zealand ... needs to make a credible minimum contribution to its own defence if it is to expect others to come to its assistance in times of crisis."[1147] But

> The more likely challenges to our territorial integrity are less grave but must still be blocked or controlled, ultimately if necessary by the use of the defence forces. They include violation of our customs or immigration laws, ... and terrorist attacks on targets in New Zealand, its off-shore installations or associated island countries.[1148]

These tasks already foreshadow the New Zealand emphasis on inter-agency cooperation that was to become much more prominent towards the end of the decade, when it drove, for example, the design of a new maritime patrol and transport capability in Project Protector, or upgrades to the P-3K Orion fleet.[1149] Although they are relatively limited in the intensity of military operations involved, they require New Zealand to carry more 'strategic weight' than any other mission—unless the NZDF is dealing with these low-level threats, no one else will. Overall, however, the White Paper acknowledges that given the country's benign circumstances, "the task of protection becomes primarily on of ensuring that no such threat emerges."[1150]

The White Paper states that "New Zealand's major contribution to regional security is to maintain capabilities which signal our commitment to respond to threats to this security".[1151] To this end,

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[1143] New Zealand Ministry of Defence and New Zealand Defence Force, *The Defence of New Zealand 1991*, p. 31; see also p. 54; Hensley, 'New Zealand's defence in the 1990s,' p. 6.

[1144] New Zealand Ministry of Defence and New Zealand Defence Force, *The Defence of New Zealand 1991*, p. 72.

[1145] Ibid., pp. 59-60.

[1146] Ibid., p. 98.

[1147] Ibid., p. 72.

[1148] Ibid., p. 59.

[1149] See Derek Quigley, 'The Evolution of New Zealand Defence Policy,' *Security Challenges*, vol. 2, no. 3 (October 2006), esp. pp. 55-62.

[1150] New Zealand Ministry of Defence and New Zealand Defence Force, *The Defence of New Zealand 1991*, p. 58.

[1151] Ibid., p. 64.

> New Zealand should have an independent capability to deploy a national force to carry out certain low-level tasks in and around New Zealand waters and in the South Pacific.[1152]

In addition, New Zealand provides defence assistance to enhance the capabilities of the states of the region.[1153] However, dealing with external threats to the region "for political and practical realities would always be undertaken in company with Australia,"[1154] and "[i]t is tacitly understood that the defence capabilities of the two countries help deter outside interference or adventurism."[1155] Therefore, "inter-operability with Australia [is] a fundamental objective of our defence planning."[1156] Already within the South Pacific, "[e]conomically-sensible self-reliance seems a reasonable goal but in practice has been beyond our abilities to fund."[1157] New Zealand still carries strategic weight in its neighbourhood, but it only does so in conjunction with (larger) Australian capabilities.[1158]

With regards to the security interests beyond the region, the Government took the decision to increase the NZDF's deployments overseas to "re-earn [New Zealand's] stripes internationally."[1159] One of the country's explicit defence policy goals was thus "to work to re-establish an effective defence relationship with New Zealand's other traditional partners, especially the United States and the United Kingdom,"[1160] and the 1991 White Paper in general takes a remarkably realist perspective on the use of military force:[1161]

> New Zealand's security interests are inseparable from our foreign policy. Defence is one of the instruments, along with diplomacy, trade, aid and others, by which New Zealand seeks to influence the external world in ways favourable to our interests.[1162]

But increased international military engagement is also seen as a way of reducing (geographically) more distant threats to New Zealand interests:

[1152] Ibid., p. 53.

[1153] Ibid., p. 64.

[1154] Ibid., p. 50.

[1155] Ibid., p. 21.

[1156] Ibid., p. 53.

[1157] Ibid., p. 50; see also p. 45.

[1158] Ibid., pp. 50-51.

[1159] Letter by then-Foreign Minister Don McKinnon to Derek Quigley, dated 9 February 2000, quoted in Quigley, 'The Evolution of New Zealand Defence Policy,' p. 50.

[1160] New Zealand Ministry of Defence and New Zealand Defence Force, *The Defence of New Zealand 1991*, p. 45.

[1161] See also Gerald Hensley, 'The Relationship Between Defence and Foreign Policy,' in *Fifty Years of New Zealand Foreign Policy Making*, ed. Ann Trotter (Dunedin: University of Otago Press, 1993), esp. 136-142.

[1162] New Zealand Ministry of Defence and New Zealand Defence Force, *The Defence of New Zealand 1991*, p. 29.

> If we want to ensure that account is taken of our economic and security interests we have to respond to the economic and security concerns of others. We have to be willing to play our proper part in the Asia/Pacific region and beyond.[1163]

The White Paper goes on to state that, for almost fifty years, "[o]ur defence has been indirect, pursued through external policies and in company with other nations,"[1164] and outside the South Pacific, "the mismatch between our size and our far-flung interests make wider partnerships the most effective method of pursuing our defence aims."[1165] These can take the form of collective security—the White Paper mentions it several times as a particular New Zealand tradition,[1166] and voices "staunch support for the United Nations."[1167] Or they can take the form of collective defence,[1168] with Australia as mentioned above, through the FPDA,[1169] or through "[t]he group efforts of like-minded countries."[1170] In general, New Zealand did not have to expect to carry strategic weight in these operations. However,

> supporting national independence and interests within the coalition means being able to bring to the grouping a demonstrably sufficient capability which helps meet the joint goals.[1171]

The NZDF thus had to be able to implement two different, very broad theories of victory with limited resources—national self-reliance in very limited situations, and cooperation as a minor ally in operations across the globe. Political guidance did not place any geographical or functional limits on what might be demanded of the armed forces. What was thus needed was an approach to defence that

> links the need for self-reliance in handling immediate national tasks with broader interests shared in partnership with Australia, the South Pacific and countries beyond, without attempting to predict the likelihood of any particular contingency.[1172]

In its 'strategy'[1173] of 'Self-Reliance in Partnership,' the White Paper took account of this

> *by avoiding two separate and uneasily-matched categories, the South Pacific and Beyond, and replacing them simply with the view looking outward from New Zealand.*

[1163] Ibid., p. 33.

[1164] Ibid., p. 28.

[1165] Ibid., p. 53.

[1166] Ibid., pp. 67, 37.

[1167] Ibid., pp. 14, 36, 38.

[1168] The White Paper only makes this distinction implicitly. See for example the use of the term 'collective security' instead of the correct 'collective defence' in: "Other, smaller groupings may come together to support their collective security or other interests." Ibid., p. 38.

[1169] Ibid., pp. 21, 45.

[1170] Ibid., p. 36; see also p. 38.

[1171] Ibid., p. 39.

[1172] Ibid., p. 54.

[1173] 'Policy' is a more accurate term.

> Defence planning becomes the task of devising appropriate responses to a spectrum of interests, starting with the capability to deal with low-level threats to New Zealand, our territorial waters and EEZ, moving out to New Zealand's maritime environment, common interests with Australia and with our South Pacific neighbours, to our more distant but not less important interests in South East and North East Asia, the Northern Hemisphere and global peace and security.[1174]

What is noteworthy here is that, with the exception of low-level contingencies, the focus remains on interests, not threats. Given the wide scope and global range of risks that the government wished the NZDF to respond to, the identity as well as way of war of future enemies was *de facto* unknown in advance.[1175] By explicitly directing the NZDF *not* to prepare for Pacific and other missions separately, the 1991 White Paper thus deliberately defines a risk pattern of *Un-Order*.

In order to treat this pattern,' it prescribes a

> task-oriented approach. This means deducing from our national circumstances the broad tasks which are likely to be asked of our defence forces, and the capabilities which will be needed to carry them out. This approach does not lessen the need to cater for uncertainty, but it does offer a systematic means of reducing the problem to a more manageable size.[1176]

Eight such 'defence tasks' are defined:

a) protect the territorial integrity and sovereignty of New Zealand, and those countries for which it has constitutional responsibilities

b) provide defence advice

c) provide intelligence

d) maintain a force-in-reserve

e) provide ancillary services

f) contribute to regional security

g) participate in defence alliances

h) contribute to collective security[1177]

It is easy to misread such a list of 'things-to-do' for a portfolio framework. However, the above is not an enumeration of separate theories of victory to be implemented to meet separate risks. Neither is it a list of missions that directly derive from such a list of

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[1174] Emphasis added. New Zealand Ministry of Defence and New Zealand Defence Force, *The Defence of New Zealand 1991*, p. 53.

[1175] The NZDF deployed a company group to Bosnia from 1994-1996, for example.

[1176] New Zealand Ministry of Defence and New Zealand Defence Force, *The Defence of New Zealand 1991*, p. 55.

[1177] Ibid., p. 58.

theories of victory to meet specific threats, which could be used to, for example, make decisions about required capability levels and concurrency issues. Instead, it contains different missions that still need to be combined into such a theory of victory at a later stage, once more clarity has been gained about a threat that may need to be met. Protecting the territorial integrity of New Zealand, for example—the 'task' that with its geographic and political aspects most closely resembles those of portfolio planning frameworks—requires at a minimum the provision of intelligence and reserve forces as well. In the absence of information about a specific threat, sufficient force levels also cannot be determined. Nevertheless, combinations of 'defence tasks' define the broad array of theories of victory that political guidance requires the NZDF to be able to implement, and link the risk pattern of *Un-Order* with the definition of requirements.

9.2.3 Codification of Requirements

New Zealand can rely on strategic warning of the emergence of major risks. However, in line with *Task-based Planning*, it does not see much scope for tactical warning: "History suggests there may be very little warning time of a crisis,"[1178] and "[f]or small and medium-sized states like New Zealand and Australia an ability to react quickly to conflict will be an important factor in regional security."[1179] Operational readiness is thus at a premium.

In the words of the White Paper, history "suggests, not that we must acquire better foresight, but that we must accept the uncertainty of where our forces may be committed and structure them with this in mind."[1180] Given the scarcity of information on risks to be met, it writes that scenario analysis cannot be used to plan for the degree of uncertainty the country is faced with. Defining capabilities therefore "is not a straightforward deductive task."[1181]

As a first step towards the definition of requirements, the White Paper breaks down the defence tasks that define the elements of future theories of victory into more detailed sub-tasks. The first task, for example—the defence of New Zealand itself—is divided into: Deterrence of threats, expansion capability, surface monitoring, interception of vessels, demonstration of presence in the maritime approaches, sub-surface surveillance, hydrographic surveys, mine clearance, counterterrorism, disaster relief and assistance to civil authorities. (Some of these sub-tasks, such as deterrence and regional defence assistance, are however not directly considered in terms of capability decisions).[1182] Task eight—the contribution to collective security—is only divided into the contribution to peacekeeping and warfighting forces.[1183] That task one is defined in

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[1178] Ibid., p. 37. See also p. 29.

[1179] Ibid., p. 29.

[1180] Ibid., p. 52.

[1181] Ibid., p. 55. It does, however, acknowledge that "[i]n particular reviews, however, it may be useful to apply other tests. For example, Net Assessment may have a value in reviewing our anti-submarine warfare capability, by estimating the degree to which any power may be able to mount a submarine threat to New Zealand's interests over the next ten years. Or Scenario Analysis may help in judging the level of a capability that might reasonably be required." Ibid., pp. 97-98.

[1182] See for example: Ibid., pp. 64, 72.

[1183] Ibid., pp. 108-110. The White Paper uses the term 'collective security' as opposed to peacekeeping forces.

more detail than task eight is a consequence of the fact that New Zealand does not have to carry strategic weight in international operations. Also, more information is available about New Zealand's national tasks: "Because defence planning is long-term, it takes as its starting point more the permanent features that shape our strategic environment than the current international scene."[1184]

These detailed defence tasks were also to become the basis of a new defence accounting system—similar, at first glance, to the output categories of the PPBS.[1185] However, the costing system in the New Zealand case was arranged around defence tasks that ultimately flowed from considerations regarding threats and theories of victory—not around the force categories themselves, which are to fulfil these tasks:

> Each of the tasks/outputs will have to be costed. ... Changing to task-based costings shifts the emphasis away from the force structure. It means allocating the costs of each force element ... across all the tasks to which it contributes.[1186]

The White Paper hopes that once the new system is introduced,

> the Government will be able to cost what the NZDF is *doing*, and not what it *is*. ... Concentrating on tasks as outputs means that proposals for a new platform will be examined for the contributions it can make, rather than being seen as a "replacement" for what is being phased out.[1187]

The implicit assumption here—that the cost of defence activities should have a larger implication for balancing between tasks—is consistent with a framework of *Task-based Planning*: As information about the threats themselves is scarce, the confidence with which the strategic effectiveness of one's own forces can be determined in advance of actual operations is even less than in other situations, and considerations such as cost gain in relative importance. In the words of the White Paper, "three-quarters of the capability for a low fee may be more realistic than meeting the high costs of specialised assets which are not fully used."[1188]

The main difficulty, however, lies in matching capabilities to the defence tasks:

> The tasks themselves are generic. They will not change much over time, though as circumstances alter so will the mix of capabilities and force elements required to carry them out.[1189]

[1184] Ibid., p. 54. See also p. 17.

[1185] Ibid., pp. 86-90.

[1186] Ibid., p. 87.

[1187] Emphasis in original. Ibid., p. 87. The term 'doing' is perhaps misleading here since it refers to wartime roles as much as peacetime activities.

[1188] Ibid., p. 91. Nonetheless, history would prove that the 1991 force structure was still too ambitious for the budget provided to defence over the following years. For the influence of the drive for fiscal efficiency on New Zealand strategy, see Derek Quigley, 'The War Against Defence Restructuring: A Case Study on Changes Leading to The Current Structure of New Zealand Defence,' *Canberra Paper*, no. 166 (Canberra: Strategic and Defence Studies Centre, Australian National University, 2006).

[1189] New Zealand Ministry of Defence and New Zealand Defence Force, *The Defence of New Zealand 1991*, p. 86.

The White Paper goes on to explain that

> The level or amount of capability required for each task must be considered: a capability for maritime surveillance is obvious for New Zealand, but specifying the distance to be covered and the detail of the coverage will have huge consequences for the equipment needed. Putting tasks, planning concepts and levels together to define capabilities and force structure is complex. It rests in part on interlocking assumptions about the probability and magnitude of the risks to New Zealand's interests and the reaction of allies. If any of these assumptions change, so does the analysis.[1190]

Although any defence planning decision relates to the future and thus must depend on assumptions of some kind, it is noticeable that the White Paper speaks *only* of assumptions here and not of observable facts: As it is faced with a risk pattern of *Un-Order*, the importance of even observable threat characteristics cannot be directly ascertained—in contrast to, for example, the role of regional military capabilities in the 1987 Australian White Paper:

> We can make sensible judgements about local strategic conditions that should remain valid over the next decade or more. But the impact of political and social influences elsewhere, and the way in which they might reflect back on New Zealand's broader security interests, are more uncertain. There are important adjustments underway in the defence capabilities and doctrines of the major powers. The next decade will be a period of significant transition in strategic terms.[1191]

This does, however, still leave the question of how to evaluate and match capabilities to the eight defence tasks. In evaluating a specific capability, one main factor is, of course, in how far it can contribute to one or several of these tasks, and in particular to national as well as collective security purposes.[1192] The contribution to Australia's security is also explicitly mentioned.[1193]

These criteria cannot, however, as of themselves be used to decide on, for example, the sophistication, size or types of capabilities required. As New Zealand's theory of victory does not require it to carry strategic weight abroad, the concept it uses for evaluations of this kind is that of

> a *credible minimum defence force*. It should be the minimum that can be fiscally sustained in the current economic realities. It should also be the minimum needed to meet our essential security interests and to reassure our neighbours and allies that we have the resolve and the capability to do so.[1194]

"[T]he other members of the grouping are the judges of what is sufficient and useful,"[1195] the White Paper acknowledges. In line with *Task-based Planning*, the

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[1190] Ibid., p. 58.

[1191] Ibid., p. 29.

[1192] Ibid., pp. 58; 97.

[1193] Ibid., p. 97.

[1194] Emphasis in original. Ibid., p. 30. See also p. 52.

[1195] Ibid., p. 39.

White Paper derives basic requirements of military effectiveness from considerations about the general nature of warfare to evaluate capabilities, such as:

> - good military skills. Since alliances by their nature deal with threats which are beyond national resources, participation in them means maintaining some ability to assist at the higher levels of conventional conflict at which the alliance would be invoked.
>
> - unit size. We must maintain force elements of a minimum functional size. ...
>
> - interoperability. ...
>
> - capability for self-defence. Force elements may need to be able to contribute to the land, air or sea defence of an allied force. Naval combatants which do not have basic protection against submarine or missile attack may have to restrict their span of operations. In a combined force they might have to be protected by others and could become a liability. Similarly, land forces without biological or chemical protection, low-level air defence and anti-tank capabilities might also be a liability.[1196]

Considerations regarding the types of capabilities required can also, to some extent, be based on primarily military considerations. The White Paper mentions New Zealand's desire to maintain a balanced force; the need for a high standard of national command and military professionalism; the influence of a capability under consideration on the effectiveness of other capabilities; as well as warning- and lead-time considerations.[1197]

However, while considerations of this type can be used to decide *qualitative* requirements, *quantitative* requirements are even more difficult to pinpoint without information about enemies likely to be encountered. In New Zealand's case, this difficulty is significantly lessened by the fact that the country does not, in most cases, need to carry strategic weight—therefore, the credible *minimum* force. It cannot, however, completely avoid making judgements regarding capability sizes. As threats to New Zealand itself are very limited, this concerns primarily operations by the NZDF in the region. Using commercial stand-by arrangements for surge air- and sealift capability, for example

> means looking at:
>
> - the likely destinations, their physical features and access facilities;
>
> - the size of the force to be deployed;
>
> - the likely length of time of a deployment, and the amount of support and reinforcement needed;[1198]

[1196] Ibid., pp. 66-67. See also the discussion of self-defence on p. 41.

[1197] Ibid., pp. 37, 44, 58, 96. Interestingly, it defines a balanced force as "a proper mix of war-fighting capabilities and support" (p. 37).

[1198] Ibid., p. 102.

The White Paper therefore makes explicit judgements that can be used as guidance for the development of quantitative requirements.[1199] With regards to deployments into the South Pacific, for example, it writes that

> An acceptable level of risk has to be set. The desired capability is therefore defined as the ability to deploy in force into those islands which have seats of government or significant centres of population.[1200]

To some extent, the impact of these judgements is cushioned by the fact that the NZDF is expected to operate in conjunction with Australian forces. But as political guidance explicitly did not define a hierarchy of risks to be met, the White Paper is also clear about the fact that New Zealand's capability in terms of size and sustainability might not always be up to specific tasks. For example,

> a major influence on New Zealand's force structure has been the need to be configured and equipped as a force-in-being to deal with "Low-level contingencies" affecting New Zealand and its neighbourhood ... . This term is ambiguous. It could involve a large effort over a lengthy period, as in counter-insurgency or irregular warfare, which could be beyond New Zealand's logistic and manpower capacities.[1201]

The confidence that can be placed in one's ability to be strategically effective in *Task-based Planning* is generally smaller than in other situations, since threats are often unknown and forces cannot be tailored to strategic risks. But the only very circumscribed need for New Zealand to carry strategic weight meant that it was not necessary to compensate for this fact by, for example, the retention of different capabilities for the same task, or a significant strategic reserve. Also, the risk pattern of *Un-Order* was primarily a consequence of the theory of victory, and only indirectly of epistemic uncertainty about threats to be faced. New information gained from actual operations was therefore only of limited value to refine capability requirements, and the concept of *Task-based Planning* could be expected to have a much longer life-span than presumed under the ideal version, and not show its 'adaptive' character.[1202]

[1199] In a similar vein, its 1997 successor concludes a demand for six P-3C LRMP aircraft, since these could maintain a presence over a point 700 nautical miles from their base for 72 hours, enough time for surface vessels to relieve them. New Zealand Government, *The Shape of New Zealand's Defence* (Wellington: New Zealand Government, 1997), p. 48. Also, the number of frigates and similar sized vessels required in the force structure was determined by the requirement to be able to keep one on international operations overseas for up to one year, while still having one ship available for operations in the South Pacific. See Derek Quigley, *Review of the Lease of F-16 Aircraft for the Royal New Zealand Air Force* (Wellington: New Zealand Government, 2000), section 4.3.

[1200] New Zealand Ministry of Defence and New Zealand Defence Force, *The Defence of New Zealand 1991*, p. 65. Incidentally, these islands would be those which can be expected to have C-130 capable airfields.

[1201] Ibid., p. 43.

[1202] Experience over the 1990s did, however, lead to a gradual shift in the perception of the risk pattern back to a focus on the South Pacific. See Robert Ayson, 'New Zealand: armed to make a difference?' in *Forces for good: Cosmopolitan militaries in the twenty-first century*, eds. Lorraine Elliot and Graeme Cheeseman (Manchester: Manchester University Press, 2004), esp. pp. 252-255.

9.2.4 Force Structure Concept

Since New Zealand was faced with a risk pattern of *Un-Order* and requirements were defined in a framework of *Task-based Planning* on the basis of generic defence tasks, the resulting force structure concept in the 1991 White Paper does not make significant use of hedges—the one exception being the retention of Special Air Service counterterrorism teams to deal with terrorist incidents in New Zealand and the region.[1203] As a major threat to New Zealand was very remote, and other requirements were concentrated in the present (due to the unreliability of tactical warning), the use of options was similarly rare: The maintenance of a basic mine countermeasures capability and sub-surface surveillance, as well as naval control of shipping and brigade-level operations by the reserves—the latter to be reviewed—are mentioned by the White Paper.[1204]

Since political guidance explicitly does not establish a hierarchy between risks and instructs the NZDF to prepare for a pattern of *Un-Order*, it is not surprising that several tasks that may otherwise have been hedged are ruled out as the foundation of force structure planning—the White Paper mentions the defence of New Zealand, low-level contingencies in the South Pacific, collective action as well as peacekeeping.[1205] Instead, it ascertains that "[a] force structured for inter-operability with Australia and our other allies will also be able to handle most South Pacific tasks. This is not true in reverse,"[1206] and that "[t]he range of our security interests and the nature and duration of modern conflict make flexibility of response essential."[1207] It goes on to explain that

> This is not a matter of being able to meet all or even most conceivable contingencies. It would be impossible to do so. ... The need is to make available to governments a reasonable range of options against an uncertain future. Flexibility becomes an important determinant of our force structure. Our armed forces should not become limited by over-specialisation in equipment or roles. We cannot plausibly guess ... what we will be asked to do next. ... they should provide a selection of deployment choices on a graduated scale, giving the government the freedom to decide what is the appropriate response in each case.[1208]

Given New Zealand's small population base, "[g]eneral purpose units, emphasising individual initiative, are necessarily favoured over larger or more specialised formations."[1209] The White Paper also judges that

> [i]n emphasising such obvious needs as flexibility and the ability to act at long distances [the 'strategy' of Self-Reliance in Partnership] should enable New Zealand to cope with ancillary tasks.[1210]

[1203] New Zealand Ministry of Defence and New Zealand Defence Force, *The Defence of New Zealand 1991*, p. 60.

[1204] Ibid., pp. 60, 73, 77, 99-100.

[1205] Ibid., pp. 51, 53, 72, 84.

[1206] Ibid., pp. 53-54.

[1207] Ibid., p. 29.

[1208] Ibid., pp. 41-42.

[1209] Ibid., p. 19.

However, the White Paper is clear that "total flexibility would be total shapelessness,"[1211] and that "[f]or a small force, the price of flexibility in roles is a certain inflexibility in responding simultaneously to the demands of other tasks."[1212]

In order to fulfil the defence tasks, the NZDF thus requires

> general-purpose capabilities and force structures with a long reach and a broad base of training and equipment. A small force with a wide range of possible tasks will favour equipment that supports more than one role.[1213]

The Ready Reaction Force is deliberately structured to operate in various configurations:

> The maximum force available, at graduated degrees of readiness, is an infantry battalion group of up to 2000 personnel, including mortars, light artillery, armoured reconnaissance vehicles, engineers and logistic support. The force can be configured in various ways. These range from a small group of lightly-armed soldiers (for example, manning vehicle checkpoints) to a battalion-sized group capable of low-level counterinsurgency operations, either independently or as part of an allied force.[1214]

The White Paper thus demands flexibility in functional terms through its emphasis on general purpose forces; in configurational terms by being able to mix general purpose force elements for specific missions in general, and for the Ready Reaction Force in particular; in geographic terms through its emphasis on generally long reach without geographic specialization; as well as with regards to equipment that supports several roles.

The White Paper does not show the spiral development and evolutionary acquisition in the procurement process that are part of *Task-based Planning*—a difference that can be attributed to the fact that New Zealand does not have to carry strategic weight against any technologically demanding threat. As the White Paper remarks, there is no strategic basis for preferring advanced systems over others that are more basic but perhaps cheaper and easier to maintain:

> It will wherever possible avoid the risks of advanced technology which elsewhere consumes huge amounts of defence spending. Infantry training and equipment or long-range air transport, to give two examples, do not need the high-cost and rapidly changing technologies which characterise air defence fighters or missile batteries. New Zealand's comparative advantage lies in the use of proven technologies. Some of these over time can be adapted to New Zealand's needs and improved at a low cost.[1215]

[1210] Ibid., p. 54.

[1211] Ibid., p. 17.

[1212] Ibid., p. 70.

[1213] Ibid., p. 42. The multi-role nature of units is also mentioned on p. 69.

[1214] Ibid., p. 79.

[1215] Ibid., pp. 42-43.

Based on the considerations so far, the White Paper then determines those capabilities most valuable for each defence task—for example, for meeting serious and lesser challenges to New Zealand sovereignty; surveillance and operations in the region; assisting in the defence of Australia; collective action; or peacekeeping. Given the uncertainty as to which task has to be met, and under which conditions, the White Paper places particular emphasis on those weapons systems, platforms or units that can contribute to most, if not all of them.

With regards to the air force, transport planes are of course essential to maintain geographic flexibility within acceptable timelines. While the Skyhawks were seen to contribute to the defence of Australia, alliance exercises and collective action, it is not surprising given other possible ways for the NZDF to contribute to these tasks that they were a vulnerable capability in 1991 already.[1216] The P-3K Orion LRMP on the other hand contribute to regional security as well as the maintenance of New Zealand's territorial integrity and the defence of Australia.[1217] In all these tasks they operate in conjunction with the frigates, which are also explicitly named as a possible contribution to collective security operations.[1218] Infantry is seen as having a role in the defence of New Zealand as well as regional security, the defence of Australia, collective action and peacekeeping. Armoured units (the NZDF operated M113 transport as well as Scorpion reconnaissance vehicles) and artillery are seen as particularly relevant to the defence of Australia and collective action.[1219] Utility helicopters and logistics and engineering units are explicitly mentioned with regards to the defence of Australia, as well as collective action and peacekeeping tasks.[1220] The reserves are assigned an explicit role in the defence of New Zealand (in their function as an expansion base).[1221] But given the priority of capability available in the present, the White Paper also notes the need to re-evaluate the balance between the expansion function and the reserve's role as a part of a total force, with more emphasis than in the past to be placed on the latter.[1222]

In summary, the risk pattern in the 1991 White Paper was one of *Un-Order*, as the Government explicitly did not give any priority to particular risks. The theory of victory was thus not specific to any particular risk or class of risk, but defined basic military tasks. Requirements were inferred on the basis of elementary considerations regarding military effectiveness. The force structure was designed to provide flexibility, and the procurement or retention of specialized platforms were explicitly discouraged. Given New Zealand's particular circumstances, industrial considerations and the need for adaptivity were not part of its defence planning framework, but overall the 1991 White Paper shows most of the defining traits of *Rearmament Planning*.

[1216] Ibid., p. 98. In fact, the Strategos Review of 1988 had already mentioned that a replacement of the Skyhawks with a similar capability may not be warranted: Strategos, *New Zealand Defence Resource Management Review 1988* (Wellington: Strategos Consulting Ltd., 1988), p. 62.

[1217] New Zealand Ministry of Defence and New Zealand Defence Force, *The Defence of New Zealand 1991*, pp. 72, 76, 81.

[1218] Ibid., p. 85.

[1219] Ibid., pp. 67, 72-73, 79, 81, 85.

[1220] Ibid., pp. 81, 84-85.

[1221] Ibid., pp. 72.

[1222] See ibid., pp. 37, 63, 77, 99-100.

CONCLUSIONS

CHAPTER 10:
THEORY AND PRACTICE
OF DEFENCE PLANNING

It is probably no coincidence that the two examples chosen for this thesis, the United States and Australia/New Zealand, are maritime nations. The security of such countries depends, to a large degree, on the control of the sea, which can be contested by a large number of potential enemies. If it is assured (or in the hands of a friendly power), however, maritime powers are 'free' to involve themselves in military adventures throughout the globe. It is thus no surprise that, over time, there should be a greater variability in the risk pattern facing maritime powers than in that facing land powers, who will always have to devote first priority to meet or prevent a threat from their immediate neighbours. But this does not mean that the theory developed in Part I should be any less relevant for them, as land powers also have to maintain a configurational fit between political guidance, the codification of requirements, and force structure concepts.

Nevertheless, the description in Part II of quite significant change in defence planning may seem exaggerated to some—especially in the Australian context, where shifts in the risk pattern were more subtle than in the case of the United States, and primarily related to the evaluation rather than assessment of strategic risk. In addition, the order of battle of the ADF has not changed that much over the years. However, approaching defence planning by skimming the *Military Balance* is highly misleading, as it cannot capture the rationale behind a capability (which, in any case, is more than a piece of equipment as doctrine, readiness, sustainability and deployability must also be taken into account). For example, over the whole period under consideration here, the ADF has operated Leopard tanks. Originally a modernization program for an Armoured Regiment accustomed to long-term combat deployment in Vietnam, they were reduced in role and number to being part of the expansion base in the mid-1970s. Thus put through their paces in preparation for, ultimately, brigade-level mechanized operations, they were then to defeat small-scale lodgements and low-level threats in the 1987 White Paper's framework. Although having thus found a more focused operational purpose in the defence of the North, they were at the same time only left in the force structure in preparation for an ever-more unlikely massive invasion.[1223] Studying the value of individual weapons systems can thus be fiendishly difficult, and it helps to explicitly relate them back to the overarching principles of *Rearmament Planning, Threat-based Planning, Multi-Threat Planning,* or *Task-based Planning.*

Throughout the case studies, considerations regarding the number of major naval combatants showed a particularly close relationship to these overarching principles. In the *Rearmament Planning* case, they were not a prominent issue for Australia at the

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[1223] Given the unusual geostrategic conditions in which the Australian Army has to operate, it is perhaps not surprising that the Abrams tanks might well continue their predecessors' uneasy relationship with the hermeneutics of strategic guidance.

time. In the United States, however, the preference for capital ships over smaller vessels flowed directly from the expectation of strategic warning, and interwar carriers were dedicated to the development of new materiel and doctrine. In both *Threat-based Planning* examples, the number of required naval vessels was determined directly by the threat, and the naval strategy to meet it. The US example of *Multi-Threat Planning* explicitly derived the number of carriers from concurrency judgements regarding *missions* directly related to the theory of victory and known adversaries (The Australian White Paper, having to contend with an implicit government decision on the matter, was silent on the issue). In its *Task-based Planning* approach, New Zealand decided on the number of required frigates through a concurrency judgement regarding *generic tasks.*[1224] The *QDR* is silent on the issue, because it does not see itself in a position yet to make judgements regarding quantitative changes to the existing force structure.

Similar observations can be made regarding the role of the reserves. In both *Rearmament Planning* examples, their purpose lay in preparing an expansion of military forces to meet a yet unspecified, future risk—hence, cadred units and long training times were acceptable. In both *Threat-based Planning* examples, the reserves and regulars were part of a Total Force. But since that force was to meet just one specific risk, each part could be assigned specific roles—in particular, the reserves were to reinforce and replace the regulars in a way that was well specified in advance. In situations of *Multi-Threat* and *Task-based Planning,* however, present challenges are so numerous (and/or uncertain) that there is a tendency for integrated operations from the outset, for example by keeping specific capabilities predominately in the reserves. Behind a seemingly constant order of battle, a move from one concept to the other will thus have quite significant consequences.

The two case studies on *Rearmament Planning* in particular demonstrate the importance of political guidance. In the American example, formal guidance was largely absent, but the Joint Board assumed that responsibility itself when it decided on the scenarios to be examined in the form of Colour Plans. The often negative comments in the literature on the Colour War Plans as 'disconnected from political reality' do not prove to be justified. Instead, a close connection between defence planning and contingency planning prevented the former from becoming stalled in futile efforts at predicting geopolitical shifts that would lead to future threats. Planning focused on those issues that could be predicted—such as the logistical and operational challenges brought up by War Pan ORANGE that, unlike the Australian studies in 1976, at least developed the outline of a military strategy in advance.

Like the Australian defence planners who contemplated future Soviet lodgements in South East Asia, US planners in the interwar period were confronted with a particularly substantial uncertainty regarding possible future threats from Europe. No enemy constellation imaginable seemed particularly credible, so they based their planning on the worst case of a war against Great Britain. War Plan RED was not an unrealistic waste of effort, but a sincere attempt to avoid the paralysis that might otherwise have been the consequence of the impossibility of predicting a particular threat from Europe. In contrast, the Australian 1976 White Paper paid lip service to the fact that scenarios were not meant to predict future risks, but allowed itself to fall into indecisiveness and never drew up an equivalent of the Colour Plans. It took more than a decade after the 1976 White Paper before the ADF began to seriously address the prospect of having to

[1224] See footnote 1200.

operate under the conditions of Northern Australia. In contrast, the United States ended the interwar years with all the necessary building blocs to create an answer to the Axis threat once it arose—which is all that could be expected of a framework of *Rearmament Planning*.

As mentioned above, the shifts in the risk patterns facing Australia between 1976 and 2000 were much more subtle than those facing the United States between the 1920s and 2001. Therefore, it is not directly intuitive why Australia's defence planning should have undergone the significant changes that it did. In the light of the material discussed in this thesis, the main fault has to be placed at the incomplete concepts behind the 1976 White Paper.[1225] Instead of not deciding on any scenario, prudence should have dictated to plan for a worst case—arguably, a *future* Soviet-controlled Indonesia along the lines of that power's relationship with Cuba. In hindsight, it is clear that a profound confusion between the purpose of operational contingency plans and scenarios for defence planning purposes was one of the main problems of the time, since a 'Core Force' oriented towards such a scenario would still have provided ample options to *adjust the defence planning effort when new and more precisely understood risks emerged.* However, it would have meant that the rather obvious operational requirements flowing from any risk pattern that includes the defence of Australia—such as the Northern air bases, the Darwin-Alice Springs railway, and Army's move north—could not have been put off indefinitely.

By 1986, the political situation within Defence was probably such that no compromise could be found that did not end the 'Core Force' construct and at the same time presented a clear threat around which to re-build the ADF. The risk pattern defined in the 1987 White Paper was defensible, but given the lack of any indication of either present or future threat, so were others. In the end, the move to the peculiar *Threat-based Planning* construct of the 1987 White Paper finally brought about the realignment of the ADF along the lines mentioned above, but arguably at the price of overemphasizing one particular (hypothetical) risk. Although the threat to Australia of 'low and escalated low-level conflict' with Indonesia was only abductively postulated, the same net-assessment methods that were used to evaluate the situation in Europe were applied. In both cases, *Threat-based Planning* led to a force structure hedge whose very detailed specifications flowed straight from the military strategy used to meet the threat, and thus made the task of defence planners conveniently simple (at least in retrospect). However, it is often forgotten how specialized a force structure hedging a single risk will inevitably become, and how small the resulting ability is to deal with tasks not considered in advance. The convenience of using *Threat-based Planning* cannot be had without the *Clear and Present Danger* that, by presenting a challenge of overwhelming priority, eliminates much of the uncertainty of other risk patterns. However, unlike most cases of a *Clear and Present Danger*,[1226] these other risk patterns by definition lack an obvious existential threat, and are thus usually (but not always) of a comparatively benign nature in the overall scheme of things.

Thus, the Cold War Central Front in many respects represents *the* reference case for defence planning, as huge resources were devoted to understanding and hedging one

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[1225] Which, however, were a symptom of already existing tensions within Defence.

[1226] The benign nature of the threat to Australia in the 1980s was, of course, largely due to its favourable geostrategic position.

single threat. Although the potential consequences of the residual uncertainty were arguably greater than in all the other cases discussed in this thesis, the problem facing US planners was clear and straightforward. This is perhaps best illustrated by the fact that the US force structure at the time contained no elements worth speaking of that did not derive their primary justification from a role in a potential superpower conflict. Unlike that very particular case, nearly every other defence planning case in reality will show at least a hint of a *Multi-Threat Planning* framework, as there is hardly ever really only one distinct risk to be taken into account.[1227] In the examples discussed here, both the US military during the interwar years and the ADF in the late 1970s had to address present tasks that were limited, but generated not insignificant requirements. Expansion base planning was distinctly secondary, but which still an element of the 1987 White Paper. And a framework of *Task-based Planning* will always blend with *Multi-Threat Planning*, as the tasks are usually derived from a collection of risks that are not well understood, but nevertheless distinct.

Unlike these cases, however, the *BUR* and the *Defence 2000* White Paper demonstrate how the need to integrate a range of different missions in one force structure is central to *Multi-Threat Planning*. Both documents made clear concurrency judgements to deal with the quantitative implications of this integration. The *Defence 2000* White Paper was more successful in dealing with the qualitative consequences, as it was able to assign the treatment of specific risks to specific services. The *BUR* de-facto ignored the qualitative requirements of risks that did not involve counteroffensives on a traditional battlefield. Overall, however, that document proves to be much better than its reputation. In particular, a risk pattern that focused on meeting regional aggression was intrinsically linked with the strategy of 'engagement and enlargement', and the two MRC standard outlived the Clinton administration. But the geostrategic realignments following the end of the Cold War, particularly in Europe, began to be accommodated in new international structures throughout the 1990s, and new economic, social, and geopolitical developments in the Middle East and Asia became more prominent. The (in retrospect) relatively high *certainty of assessment* on which the *BUR* had been based was thus reduced, and the 2001 *QDR* shifted planning towards a framework of *Task-based Planning*.

In general, elements of *Task-based Planning* were present not only in the last two case studies, but also when future risk had to be treated in situations with particularly low amounts of information about likely enemies: In the absence of clear guidance, the Australian 'Core Force' of the late 1970s, for example, largely degenerated into a collection of disparate force elements that preserved a wide range of capabilities without a clear and overarching ordering principle. Both the United States in the interwar years, and Australia after the 1987 White Paper, preserved an elementary capability of armoured operations with only a very tentative logical basis in war plans.

Task-based Planning can be very attractive, since it is the framework with the longest logical link between capabilities in the defence force and strategic risk. Seemingly, this reduces the need for sound reasoning in capability decisions, but provides a justification for funnelling money to any services' pet project. However, it is no coincidence that both of the last two case studies primarily shed light on one particular aspect of that

[1227] One could even argue that, at some level, every force structure will always be a portfolio, however lopsided—even if the secondary function with force structure implications does not involve the treatment of strategic risk, but the provision of a ceremonial unit such as the *Garde Républicaine*.

elusive planning model. New Zealand carries hardly any strategic weight, and thus does not have to pay particular attention to whether its efforts could actually force its will on an enemy. Thus, the 1991 *Defence of New Zealand* White Paper demonstrates the 'pleasant' side of *Task-based Planning*, which reduces the definition of requirements to the assembly of elementary force structure building blocs. The authors of the *QDR*, however, knew that the United States still had to maintain the ability to carry strategic weight against a number of enemies (and, thanks to a number of countries displaying open or thinly veiled hostility, were closer to a framework of *Multi-Threat Planning*). Therefore, the central feature of the *QDR* is the imperative to generate new information, in order to move toward a situation in which the defence effort could be more closely aligned with distinct strategic risks—the results of which began to show in the 2006 *QDR*.[1228]

Ever since the end of the Vietnam War, the question of whether to move to *Task-based Planning* presented a significant challenge for Australia. Given its small size, the country cannot expect to carry strategic weight globally. The Australian Army has a long and honoured tradition of fighting in overseas wars without making any difference whatsoever to the overall outcome.[1229] This is, of course, a legitimate way of approaching defence policy for small countries, but more so than New Zealand, Australia must address the question of where to draw the line between those situations in which it does want to carry strategic weight, and those where it cannot or does not want to do so.

The 1976 'Core Force' arguably preserved flexibility in this regard. The 1987 White Paper reduced ambitions to the defence of Australia and did not accord contributions to other missions any role in the definition of requirements. The 2000 White Paper, in turn, expanded ambitions quite significantly, in that Australia expects to be able to carry strategic weight certainly in the defence of Australia and its immediate neighbourhood, but also to a limited degree within island South East Asia—hence, the need to use a *Multi-Threat Planning* framework. Following that White Paper (and after the material covered in this thesis), Australia has however moved closer and closer to New Zealand's *Task-based Planning* framework of the 1991 White Paper. The risk pattern to be treated is more and more 'spread across the globe', while new capabilities are more and more justified on their own tactical merits, rather than by their role in a coherent national military strategy able to generate strategic weight.[1230]

Overall, the case studies have demonstrated that the theory of this thesis relates, in a quite detailed manner, to the development of defence planning frameworks in practice. As the case studies and the preceding discussion show, *Rearmament Planning, Threat-based Planning, Multi-Threat Planning,* and *Task-based Planning* cannot provide a recipe for successful defence planning. Even their constituent elements, relating to risk

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[1228] Office of the Secretary of Defense, *Quadrennial Defense Review Report* (2006), pp. 19-40. Whether that document did indeed identify the correct risks is, of course, an altogether different matter. See Colin S. Gray, 'The Quadrennisal Defense Review (2006) and the Perils of the 21st Century,' in *American National Security Policy: Essays in Honor of William R. Van Cleave*, ed. Bradley A. Thayer (Fairfax, VA: National Institute Press, 2007), pp. 70-76.

[1229] Arguably, with the exception of the Kokoda campaign in WWII.

[1230] Department of Defence, *Australia's National Security: A Defence Update 2003* (Canberra: Commonwealth of Australia, 2003), Department of Defence, *Australia's National Security: A Defence Update 2005.*

and uncertainty, strategy and codification, inferential methods and force structure concepts, are suited to inform rather than direct practical efforts. However, the purpose of the thesis has been achieved if these concepts and four frameworks do indeed, "give the mind insight into the great mass of phenomena and of their relationships, then leave it free to rise into the higher realms of action."[1231] Three broad practical points in particular stand out in this regard:

First, this thesis has clarified the way in which capability programs should relate to political guidance. It is always easy to make the case for a new capability on tactical or even operational grounds. It is also easy to conjure up scenarios with a more or less direct relation to political guidance that seemingly demonstrate how such a capability would directly contribute to achieving the leadership's intent. However, such an approach is only fully justified in a framework of *Threat-based Planning*, where there is no great uncertainty as to the operational and even tactical challenges ahead. The uncertainty and variability of operational and strategic challenges that might flow from political guidance must always be taken into account, which is the purpose of the 'intermediary' concepts of hedges, options, portfolio, and flexibility. It is, therefore, to these concepts, within the parameters established by strategic guidance, that a capability program should primarily relate. More often than not, such an approach will lead to force structures that are not optimised for a particular scenario—but given that strategic risk is the problem, only *ex-ante* optimality over the full range of possible futures is relevant for a capability decision. In addition, concentrating on hedges, options, portfolios or flexibility also highlights the importance of capability elements other than mere force structure, such as the variability of roles considered in training and doctrine, or deployability and logistic wherewithal.

Second, this thesis has provided a much more sophisticated framework of thinking about strategic risk and uncertainty than was available in the literature before. It has demonstrated that strategic risk must be conceived of as a multi-dimensional concept that has both a strategic and risk-related nature. Strategic risk is inseparable from potential enemies and their theories of victory. It is also inseparable from uncertainties that relate not only to the question of whether a particular enemy will attack or not, but also who the enemy might be, what he might do, and, especially, how certain we are about our answers to these questions. Describing such different levels of uncertainty is not easy, but it is impossible if they are not made explicit. It also requires making a judgment regarding risk categories that by definition go beyond the decisionmakers' current state of knowledge, and leads them to assess *indeterminacy* as well as *ignorance*. In this context, it is important to maintain a clear separation between the roles of risk assessment and risk evaluation, even though both cannot always be done consecutively. Furthermore, the framework outlined in this thesis demonstrates the limitations of thinking in terms of threats, rather than risks. Like 'risk', 'threat' refers to possible rather than realized harm. However, it does not say anything about how likely that harm is, or how well understood, and is thus only meaningful as one of the constituent elements of strategic risk. Only the multi-dimensional nature of strategic risk can, for example, capture the difference in the confidence of assessment regarding threats that are deductively inferred on the basis of observed developments, and those that are only abductively postulated on the basis of the vulnerabilities in one's own posture.

[1231] Clausewitz, *On War*, p. 698.

Third, the thesis provides a general framework of defence planning that can serve to draw parallels between countries in different times and different strategic locations. Many of the similarities highlighted in the case studies in this thesis are not immediately obvious, since they are based on variations in the 'subjective' risk pattern facing countries, rather than the (relatively) immutable 'objective' factors, such as geography, power or strategic culture, from which theories of strategy, geopolitics or international relations draw their main conclusions. Authors tasked to write a new White Paper or Defence Review do not need to reinvent the wheel each time their risk perceptions change: The framework developed herein demonstrates the existence of a much larger number of parallel historical situations than could be inferred on the basis of the objective, immutable factors alone. As such a framework can demonstrate the bounds within which more detailed analytical methods are applicable, it also becomes easier to determine which of these concepts are, and which are not, transferable to the problem at hand.[1232] Finally such a framework can be used to manage the expectations in the defence planning process, as strategic risk implies uncertainty, and uncertainty implies a difference between what is best *ex-ante* and *ex-post*. Conveying to politicians and public alike what defence planning can, and what it cannot, be expected to do to reduce that difference would perhaps be the most important contribution of this thesis to the practice of defence planning.

[1232] Indeed, it would probably not be wrong to suggest that the archives of the RAND Corporation, for example, might contain a number of works that, if taken out of their specific American context, could also benefit non-American defence planners to a larger extent than is currently the case.

GLOSSARY

Abduction	Inferential method that concludes from a rule and a result to a possible precondition that may have caused the result. Abduction only infers possibilities.
Certainty of Assessment	The reliability of the determination of probability and consequences during *Risk Assessment*. In mathematical terms, the error corridors of an estimated probability or damage function.
Codification	Transformation of a leadership's intent into detailed methodologies, defined analytical categories, procedures and decision criteria that can be used to guide (bureaucratic) implementation.
Deduction	Inferential method that concludes from a precondition and a rule to the result that must follow. Deduction infers necessities.
Epistemic Uncertainty	Uncertainty caused by insufficient knowledge about a particular matter, or by the methods of acquiring it. (See also *Ontological Uncertainty*).
Flexibility	The ability to adapt instantly and without warning to situations that have not been explicitly considered in advance.
Hedge	Reduction of a very specific risk, whose costs fully have to be paid up-front (e.g. insurance).
Ignorance	The complete absence of knowledge of both the possible consequences and their probability of occurrence.
Incertitude	The general fact that any *Risk Assessment* is uncertain, and cannot be used to make a deterministic forecast of events.
Indeterminacy	A situation in which possible consequences are largely known, but no reliable statement can be made regarding probabilities (or vice versa).
Induction	Inferential method that concludes from a precondition and a result to a general rule. Underlying both statistics and experience, induction infers probabilities.
Institutional Risk	Reflexive risk, i.e. risk arising from an insufficient consideration of one's limited state of knowledge, in an institutional context.
Mobilization Readiness	The degree to which preparations have been made to transform the military potential of a nation into actual capability.
Objective Risk	An ideal concept, whose materialization can only be ascertained ex-post. Objective risk is usually unknown in reality, and *Risk* refers to

upper and lower bounds within which it is believed to fall.

Ontological Uncertainty — Uncertainty caused by the nature of, and being an inherent quality of, a particular matter. (See also *Epistemic Uncertainty).*

Option — Two-stage risk treatment, where the first-stage investment buys the opportunity to make a second-stage investment later. Within the bounds established by the first stage, the second stage can make use of new information.

Operational Readiness — The difference between the full combat potential of existing military units and their current potential.

Political Guidance — Consists of the pattern of *Strategic Risk* that a nation's leadership wants to be treated, as well as the general *Theory of Victory* that is to be used to do so. (See also *Strategic Guidance*).

Portfolio of Forces — Force structure designed to be able to treat several different and distinct risks, often through the generation of various sub-sets of forces.

Precautionary Principle — Decisionmaking principle that, if there are indications that a grave *Risk* may exist, (scientific) uncertainty should not preclude measures from being taken to reduce the risk. Precaution should be distinguished from prudence, which relates to making risk-averse (conservative) assumptions in the *Risk Assessment* stage.

Readiness — Relates to the trade-off between military capability and time, due to the fact that the opportunity cost of maintaining capability is a reduction in the ability to generate (more) capability later. (See also *Operational, Structural,* and *Mobilization Readiness*).

Risk — The combination of uncertainty, threat, and vulnerability giving rise to a possibility of harm that can, however, be influenced ex-ante (if not, it is fate). In a limited sense (and contrasted with *Indeterminacy* and *Ignorance)*, the mathematical combination of known probability and consequences.

Risk Assessment — Generation, summary, and presentation of (objective) quantitative and qualitative data on a *Risk.*

Risk Characterization — Combination of *Risk Assessment* and *Risk Evaluation.*

Risk Evaluation — Comparison of a *Risk* against a decisionmaker's preferences, with the aim of making a judgement about the acceptability of the risk, or the establishment of a (subjective) hierarchy of importance.

Risk Treatment — Measures that are taken before the realization of a *Risk* to raise its acceptability, by reducing the probability, abating the consequences, or reducing uncertainty.

Statistical Uncertainty	The situation in which the *Certainty of Assessment* can be quantified by a statistical technique, for example a confidence interval.
Strategic Guidance	Codified form of *Political Guidance* that comprises detailed instructions on how to implement it. (See also *Codification*).
Strategic Pyramid	The fact that the achievement of political goals through the use of force rests on a hierarchy of levels of *Strategy*, from the generation of capabilities, to tactics, to operations, to politics.
Strategic Risk	The *Risk* that political goals may not be achieved against the deliberate opposition of an adversary.
Strategic Warning	Notice of the emergence of a new, or a change in an existing, *Strategic Risk.* (See also *Tactical Warning*).
Strategic Weight	Extent to which a country's military effort influences the outcome of a conflict through its direct effect on the adversary. A country that does not carry strategic weight can still use its armed forces to give political support to the effort of allies who do carry strategic weight.
Strategy	The relationship between political goals and military force. Specifically, it is understood here as the system of cause-effect relationships that underlies the *Strategic Pyramid.*
Structural Readiness	The extent to which the military potential inherent in a nation's population and economy has been transformed into military units, regardless of their state of *Operational Readiness.*
Tactical Warning	Advance notice of impending enemy action, i.e. of the realization of a *Strategic Risk.* (See also *Strategic Warning*).
Theory of Victory	Ex-ante conception of how political goals may be achieved by the use of force, and thus combining the instrumental and experimental nature of *Strategy.*

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